JUNE '61

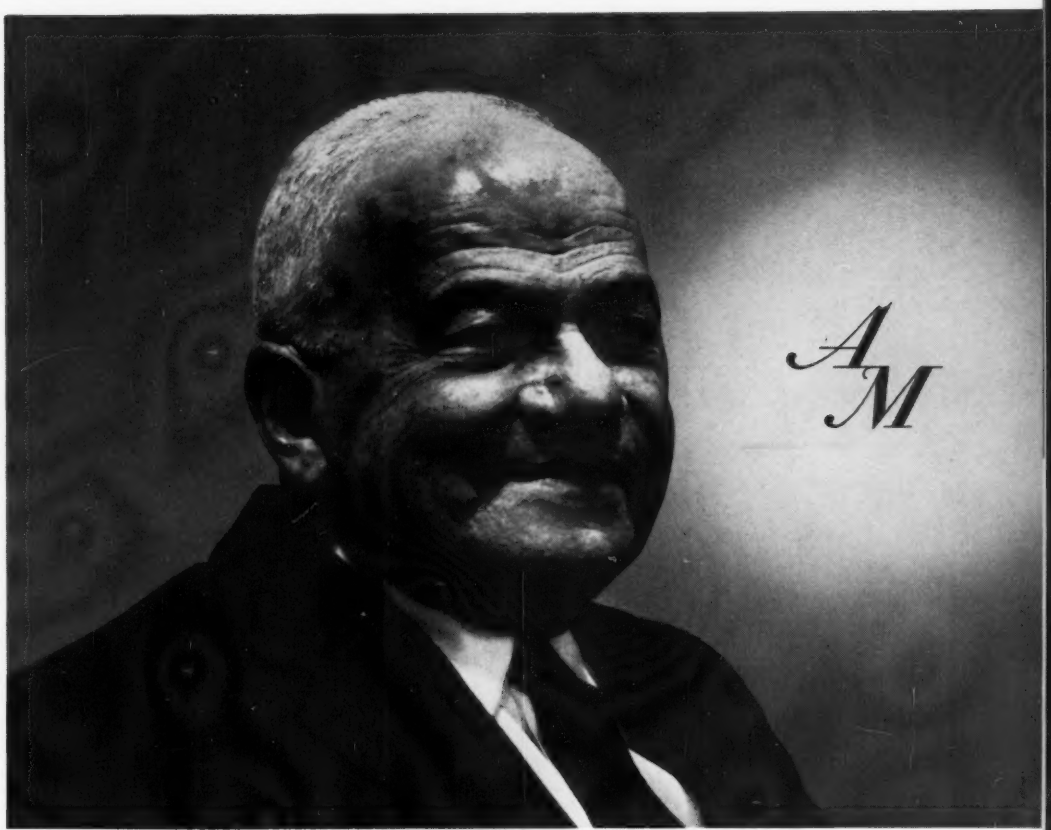
MODERN TEXTILES MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES



LOUIS MALINA— he built a better synthetic yarn sales and yarn dyeing business— story page 21

NEW USES OF MANMADE FIBERS IN APPAREL FABRICS

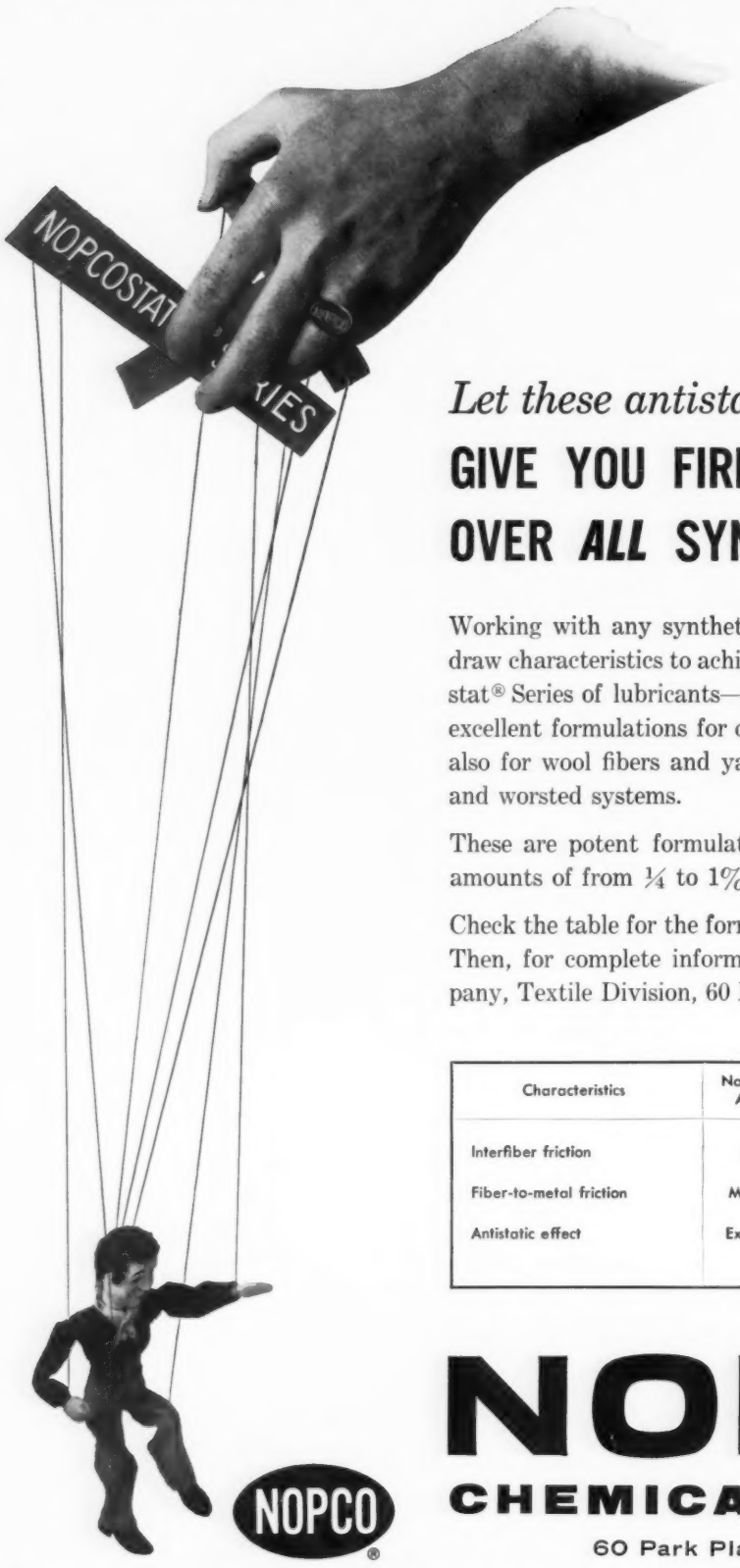
How to make and market support stockings

The future of woven stretch fabrics

Report on Atlantic City Knitting Show

PLUS 11 MORE USEFUL ARTICLES AND INFORMATIVE REPORTS

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU



Let these antistatic lubricants

GIVE YOU FIRM CONTROL OVER *ALL* SYNTHETIC FIBERS

Working with any synthetic fiber, it is necessary to alter the draw characteristics to achieve balanced processing. The Nopcostat® Series of lubricants—products of Nopco® research—offers excellent formulations for cellulose, polyester and acrylic fibers; also for wool fibers and yarns and yarns processed on woolen and worsted systems.

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Characteristics	Nopcostat AS-40	Nopcostat LV-40	Nopcostat 2152-P	Nopcostat 2152-X
Interfiber friction	Low	Medium	High	High
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Antistatic effect	Excellent	Excellent	Excellent	Excellent

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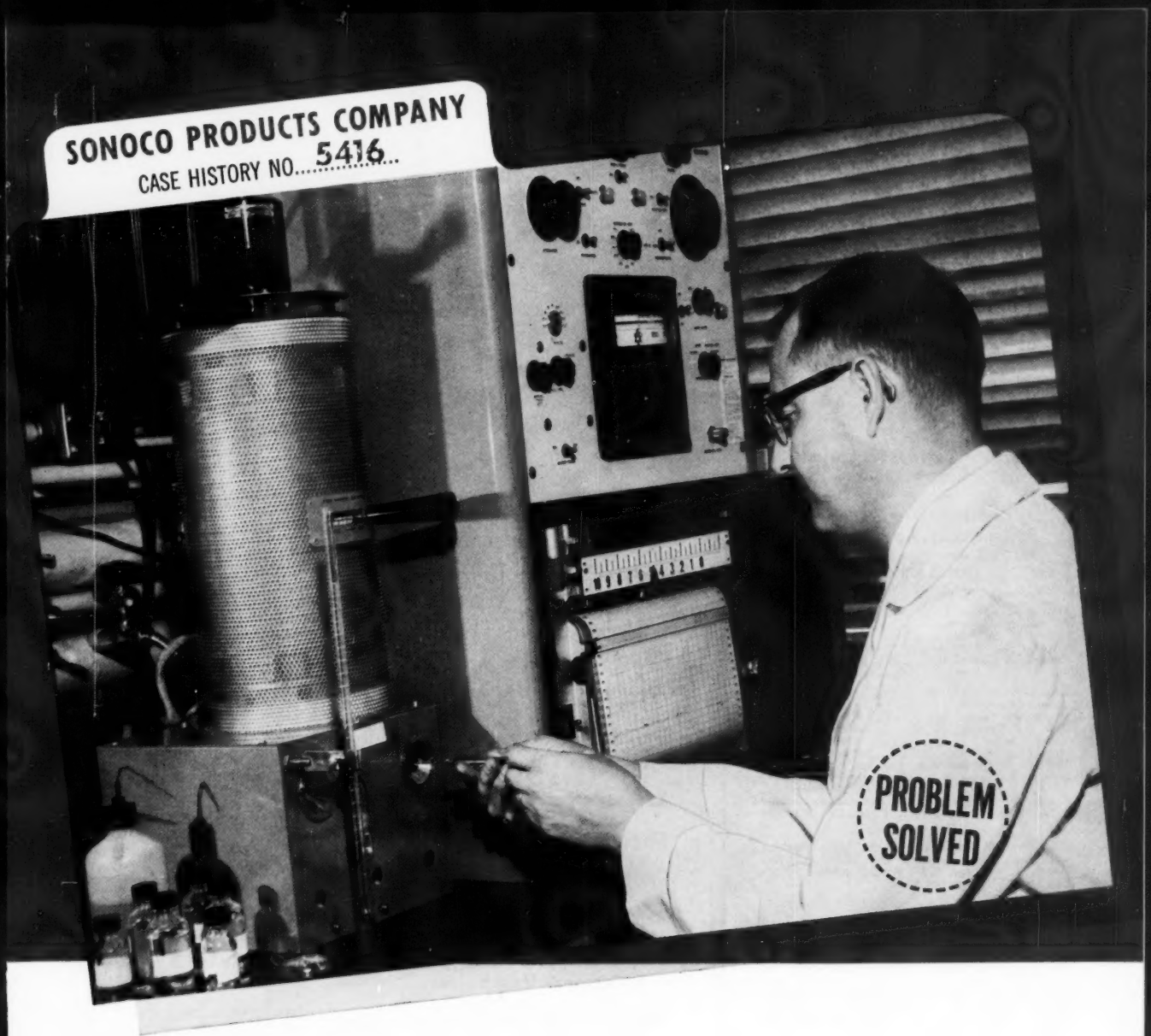

PROBLEM: Streaks in finished cloth

The cloth was woven from a blend of acetate and viscose rayon yarn. The streaking resulted from the acetate having an affinity for viscose dyes. Tests showed a slight akaline condition on the surface of the tube used as a carrier for the acetate yarn. This was the cause of the trouble.

Sonoco then developed tubes having surfaces within the neutral range. These carriers had no effect on the yarn and the streaking problem was eliminated.

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MODERN
TEXTILES MAGAZINE*

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American Association of Textile Chemists and Colorists ..... Lowell Techn. Inst., Lowell, Mass.
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Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York

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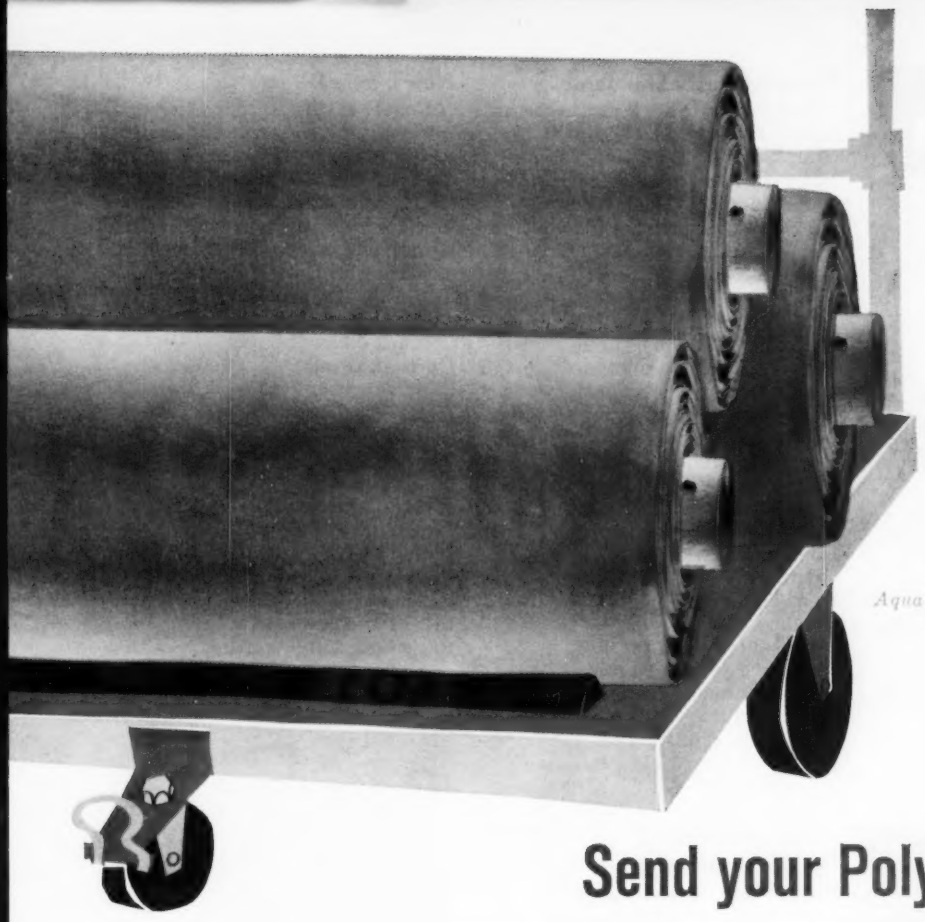

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Your Eastman representative will be glad to tell you about the performance advantages and economy of these dyes

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In step with this trend, Eastman offers an expanding series of polyester dyes, providing the best all 'round fastness characteristics of polyester dyes currently available.

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Get the full story of this outstanding line of dyes for polyester fabrics from your Eastman representative. Formulations and technical assistance on dyeing procedures are readily available.

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Eastman Polyester Dyes are sold in the United States by **EASTMAN CHEMICAL PRODUCTS, INC.**, subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Lodi, New Jersey; and Greensboro, North Carolina. On the **West Coast** through WILSON & GEO. MEYER & COMPANY, San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In **Canada** through CLOUGH DYESTUFF CO., LTD., St. Laurent, P. Q.

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Polyester Blue GLF
Polyester Blue GR
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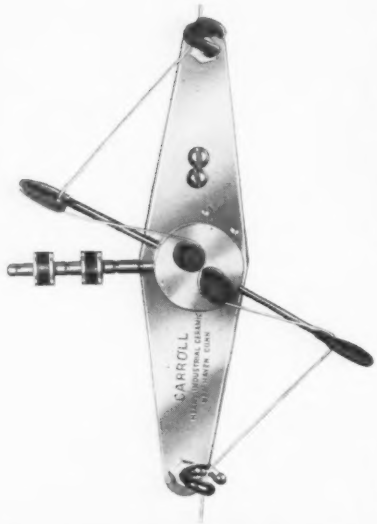

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Narrow Fabrics Standards

The Narrow Fabrics Institute has published the first of its standards pamphlets, "Woven Nonelastic Narrow Fabrics: Classification—Nomenclature—Definitions." Single copies are available free from the Institute at 11 W. 42nd St., New York 36, N. Y.

Testing Standards Available

Availability of three newly-revised American standards in the textile field covering test methods for woven fabrics, wool and part fabrics, and the number of neps in cotton samples, has been announced by the American Standards Association. Copies of the standards are available at 30 cents each from the association's Department PR 229, 10 E. 40th St., New York 16, N.Y.

New Scott Testers' Plant

Scott Testers (Southern), Inc., has announced completion of new plant facilities which double the operating capacity of the company's 5-year old building at Spartanburg, S. C. The South Carolina firm is a subsidiary of Scott Testers, Inc., Providence, R. I.

Patent Suit Withdrawn

A patent infringement suit against The Adams/Zeller Corp., Glenside, Pa., has been withdrawn in U.S. District Court, Philadelphia, Pa., by National Drying Machinery Co., Philadelphia. An Adams/Zeller spokesman stated that the voluntary dismissal was requested by the plaintiff following the taking of preliminary testimony. Adams/Zeller will continue to manufacture loop type dryers and roll-type curing machines for the textile industry.

Name Selling Agent

United States Rubber Co. has named the Sam M. Butler Co. of Charlotte, N. C., exclusive selling agent for its synthetic and combed cotton knitting yarns in the Carolinas and Virginia.

Lubricant Firm's 65th Birthday

The New York & New Jersey Lubricant Co. is celebrating its 65th anniversary of specialized lubrication service to industry. The firm manufactures Non-Fluid Oil, with various grades tailor-made to fit particular requirements. Thorough research, the company reports, evolved "the oil that does not drip" and "the lubricant which stays alive longer."

New Lindly Directors

Robert E. Burns and Chester D. Seftenberg have been appointed to the board of directors of Lindly & Co., Inc., manufacturers, designers and engineers of industrial electronic inspection and control equipment, precision photoelectric systems and optical units.

New Glass Fabric Plant

Clark-Schwebel Fiber Glass Corp. has started production of glass fabrics at its new $3,500,000 fiber glass weaving and finishing plant in Anderson, S. C. The 163,-000-square foot facility is located on a 20-acre site which will permit future expansion.

New Reeves Division

Reeves Brothers, Inc., has formed a new Fiber Division for the production and sale of staple, tow and multifilament polypropylene. The new unit also is responsible for marketing polyethylene and polypropylene monofilaments and bristles.

PTI Changes Name

Philadelphia Textile Institute has received official approval to change its name to the Philadelphia College of Textiles and Sciences. Traditionally a textile college, the trustees recently authorized a sweeping policy change to allow for the inclusion of degree programs in non-textile fields.

Vat Dye Officials

J. Robert Bonnar of General Aniline & Film Corp.'s Dyestuff and Chemical Division, was elected president of the Vat Dye Institute at the recent fourth annual meeting. Other officers elected were: Keith R. J. Horner, Toms River Cincinnati Chemical Corp., senior vice president; Eric R. Herbertson, Arnold, Hoffman & Co., Inc., vice president, and James L. Naylor, American Cyanamid Co., treasurer. E. S. Meyers, Laporte & Meyers, continues as secretary and counsel.

'Spunize' Suit Settled

Spunize Co. of America, Inc., owner of patent rights covering crimped, continuous filament yarn, sold under the "Spunize" trademark, has agreed to settle its patent infringement suits against Joseph Bancroft & Sons, Inc., and the Duplan Corp. Both of these firms, Spunize said, have agreed to accept a non-exclusive license for the production of crimped, continuous filament yarn and to settle damages.

GOODYEAR

SAGNER SETS NEW STANDARDS IN SUITS

Spinco · Northcool Sagner Vycott · Vycron · Vitel

The Northcool suit was tailored by Sagner, of course.

The Vycott fabric (65% polyester – 35% combed cotton) was woven by Spinco Fabrics, Inc., and certified by U. S. Testing Co.

The Vycron polyester fiber was spun by Beaunit.

The Vitel polyester resin was produced by Goodyear.

And so a new standard in wash-and-wear suits is set. For these fine names have combined their skills to produce a garment that's unmatched in its smart color, luxurious texture and all-around performance.

VITEL makes this performance possible by imparting these properties to fibers: Exceptional yarn strength –good fiber-to-fiber cohesion–outstanding mill processability–unusual dyeability and colorfastness–excellent resistance to pilling and abrasion–ideal wash-and-wear properties. Further information on VITEL is yours by writing Goodyear, Chemical Division, Dept. F-9476, Akron 16, Ohio.

Lots of good things come from

GOODYEAR

CHEMICAL DIVISION

Northcool, Vycott–T. M.'s Sagner, Inc., Frederick, Md.
Vycron–T. M. Beaunit Mills, Inc., Fibers Division, New York, N.Y.
Vitel–T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Summer Textile Courses

A number of colleges have announced summer short courses designed specially for personnel in the textile industry and related fields.

At Clemson College School of Textiles, Clemson, S. C., beginning June 12, the following courses will be offered throughout the summer: yarn manufacturing, fabric development, supervisor development, quality control, and motion and time study.

North Carolina State College, Raleigh, N. C., from June 5 through June 16, will offer courses in the field of textile technology.

Textile structural mechanics' courses will be offered at the Massachusetts Institute of Technology, Cambridge, Mass.: the session on elements is set for June 19-23, and the advanced session for June 26-30.

Lowell Technological Institute, Lowell, Mass., has scheduled the following courses: fiber, yarn and fabric technology, for June 12-23, and dyeing & finishing technology and textile testing, June 26-July 7.

Cotton Mill Statistics

A panel of specialists to oversee the collection, analysis and distribution of textile mill statistics has been appointed by Joseph L. Lanier, chairman of the American Cotton Manufacturers Institute's Economic Policy Committee. The panel will be known as the Technical Consultant Group, and it will assist the committee and the ACMI's Economic Information Division in preparation of the quarterly publication, "Textile Hi-Lights," and in cooperative studies with the Bureau of the Census and other governmental statistical agencies.

Lohrke Enters Yarn Field

Lohrke Textiles, Inc., has expanded its synthetic top manufacturing operation and will offer yarns for industrial and specialty apparel uses, according to a recent announcement by James L. Lohrke, president. The firm has been instrumental in many developments in the synthetic fiber field, the most notable being Turbo Orlon utilizing the Perlok Process, invented by James L. Lohrke's father and now in use in major countries throughout the world.

Sales offices are maintained in Philadelphia and long staple equipment has been installed at the company's Garth Mill in Paterson, N. J. Lohrke also stated that the firm plans to concentrate its primary emphasis on research and development aimed at perfecting new yarns with optimized characteristics to meet specific end use requirements.

Avisco Outlook Brighter

"There were some improvements in the first quarter of 1961 and we expect further increases in our sales and earnings during the last half of the year," Dr. Frank H. Reichel, chairman of the board of American Viscose Corp., told the recent annual meeting. Dr. Reichel said that all Avisco products hold good market positions and considerable research and development work is being done to assure the company's future by improving products and through diversification.

The chairman said the most important event at American Viscose in the past year was the sale of its one-half interest in The Chemstrand Corp. to Monsanto Chemical Co.

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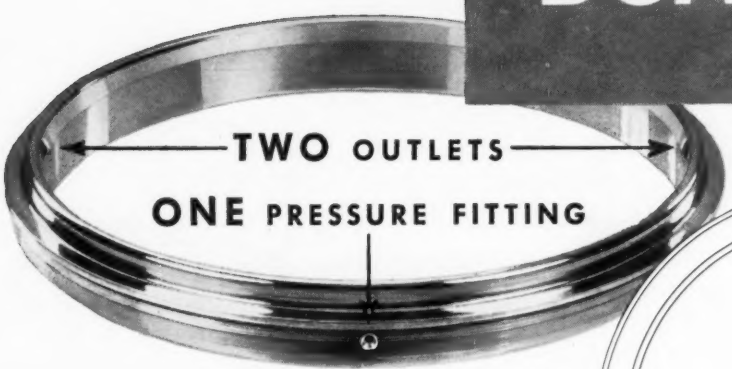

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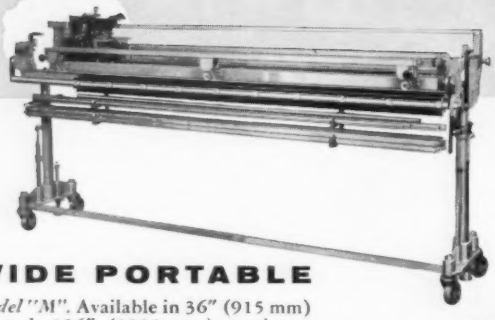


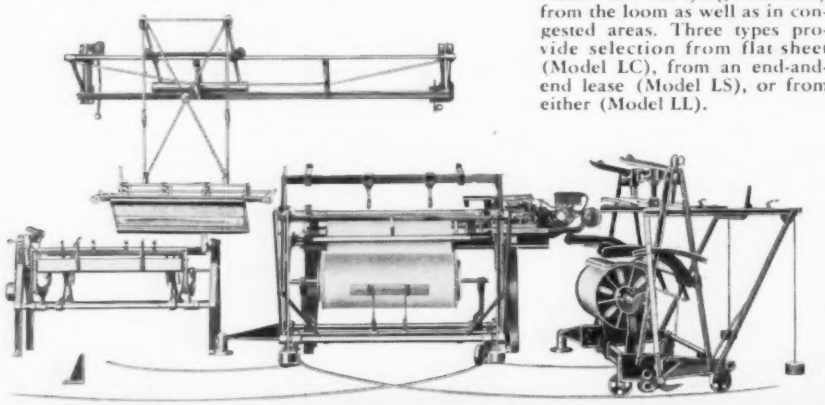
WIDE PORTABLE

Model "M". Available in 36" (915 mm) through 126" (3200 mm) maximum warp width capacity. Multiple frames permit advance loading. Three types provide different methods of selection.

ALL MODELS OPERATE UP TO 325 KNOTS PER MINUTE CONTROLLED BY VARIABLE SPEED MOTOR DRIVE

15" (380 MM) PORTABLE

Model "L". For tying at or away from the loom as well as in congested areas. Three types provide selection from flat sheet (Model LC), from an end-and-end lease (Model LS), or from either (Model LL).



STATIONARY

Model "EL". Designed for use in mills that concentrate on simple weaves. Available in 46" (1170 mm) through 116" (2950 mm) maximum warp width capacity. Tying ahead saves substantial down time at the loom. Selects from flat sheet only. For cotton and spun yarns.

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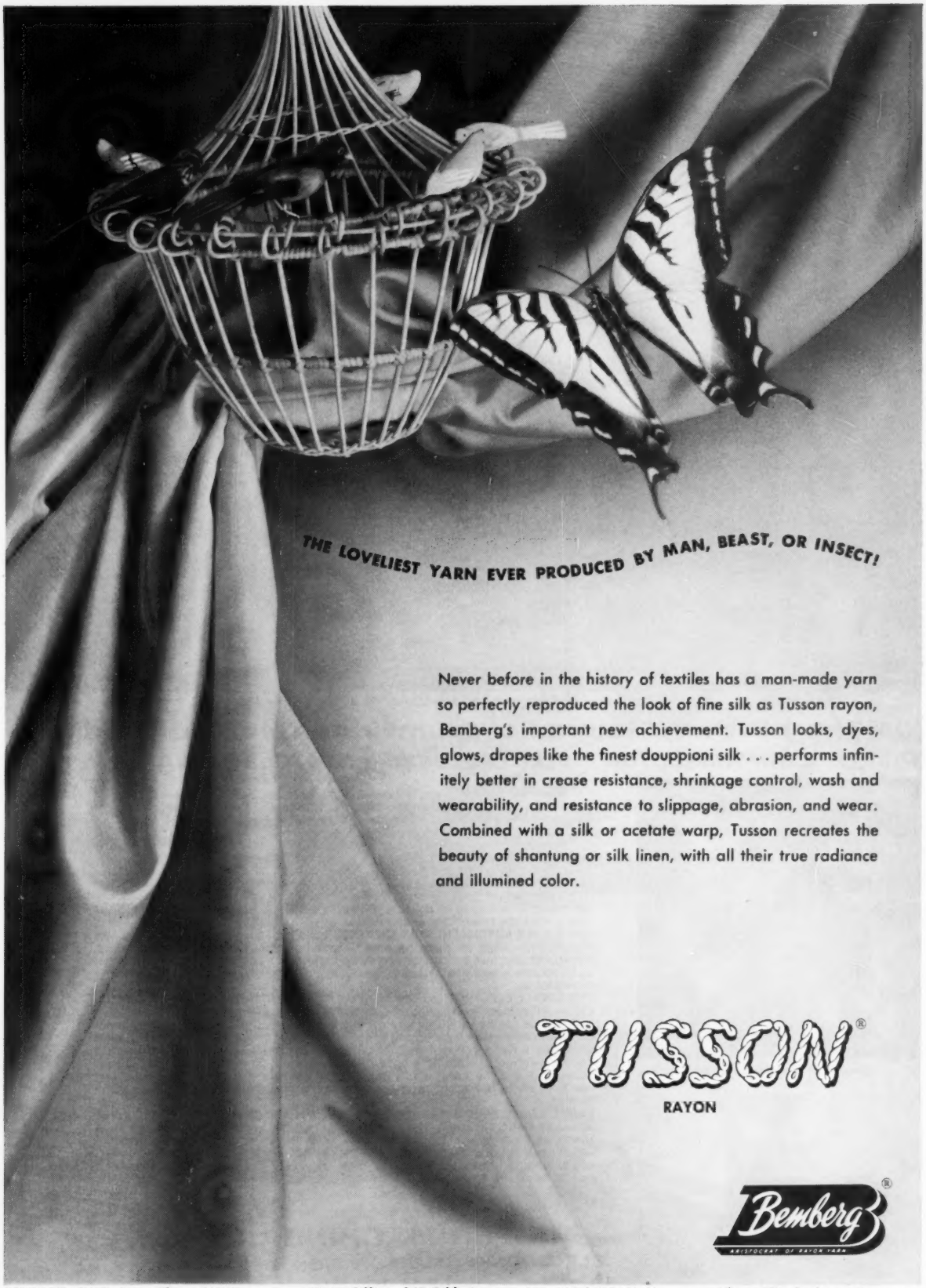
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Never before in the history of textiles has a man-made yarn so perfectly reproduced the look of fine silk as Tusson rayon, Bemberg's important new achievement. Tusson looks, dyes, glows, drapes like the finest douppioni silk . . . performs infinitely better in crease resistance, shrinkage control, wash and wearability, and resistance to slippage, abrasion, and wear. Combined with a silk or acetate warp, Tusson recreates the beauty of shantung or silk linen, with all their true radiance and illumined color.
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"No more tight ends in our warps"

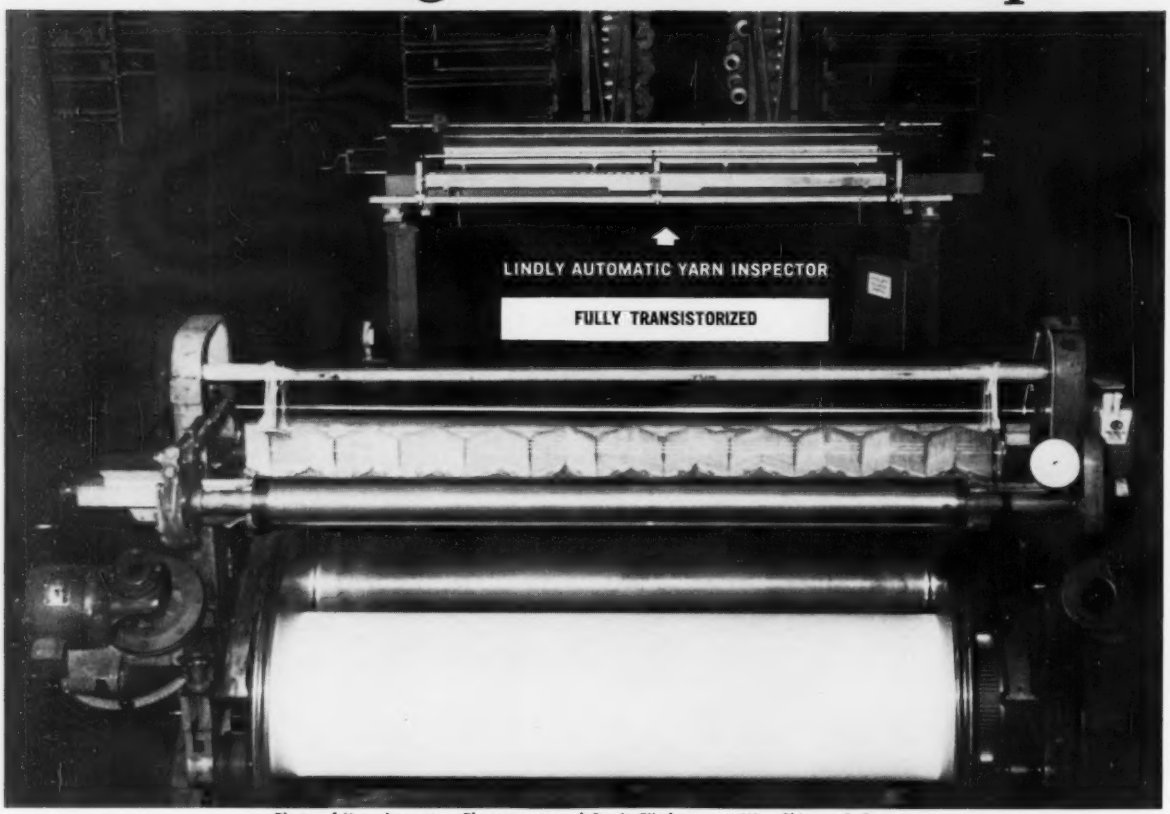
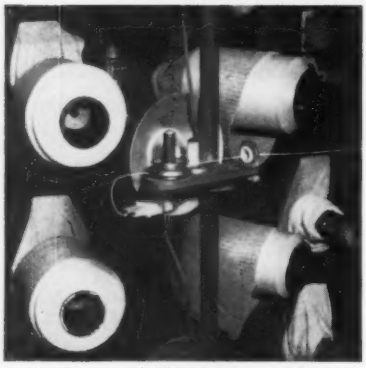


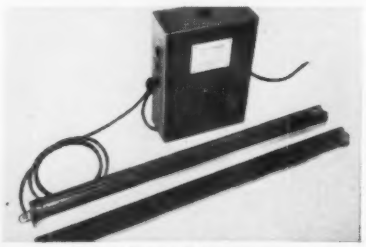
Photo of Yarn Inspector. Electrotense and Static Eliminator at Wm. Skinner & Sons

The LINDLY Electronic Triumvirate Gets the Credit

YARN INSPECTOR – ELECTROTENSE – STATIC ELIMINATOR



Closeup of Electrotense in creel.



Lance Static Eliminator — not visible in installation photo.

When we asked William Skinner & Sons, Holyoke, Mass. for a report on their installation of a Lindly Automatic Warp Yarn Inspector, the Lindy Electrotense in their creel and a Lindy Static Eliminator, their answer was prompt and enthusiastic: "No more tight ends in our warps."

However, when we asked them to go back temporarily to warping without the Lindly controls, so we could get some comparative "before" data, they flatly refused. "Why should we go through that again, when we don't have to?" they asked, and we can't blame them.

Since Skinner didn't need comparative data to prove the value of the Lindly Electronic Triumvirate, we doubt if you would either. So why not try an installation? Here's what the triumvirate is and does:

THE LINDLY AUTOMATIC YARN INSPECTOR is a high-speed, ultra sensitive photo-electric instrument for detecting yarn defects in warps, such as broken filaments, strip-backs and fluff balls. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection.

THE LINDLY ELECTROTENSE for warp creels, winders, twisters, knitting machines, etc. provides completely uniform tension for any number of ends and the tension for all ends can be varied by turning only **one** dial. It consists of two conventional discs with an electromagnetic coil beneath. The lower disc is of non-magnetic brass, while the upper disc is of magnetic iron. When the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating, which prevents backup of twist and helps keep the tension discs clean and free turning.

LANCE STATIC ELIMINATOR, made in a variety of models, has a textile application wherever static electricity is a problem. It carries a high voltage discharge from pointed electrodes into the air, causing the fibre to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to ionize effectively the air, it cannot harm the operator, who accidentally comes in contact with the electrodes.

FOSTER MACHINE COMPANY
ELECTRONIC SALES DIVISION, DEPARTMENT MTM-6
Westfield, Massachusetts, U.S.A.
Southern Office, Johnston Bldg., Charlotte, N. C.

468-0

This is a cotton spread...
This is an ENKA Skybloom™ spread...
AND THIS IS ONE OF THE BIG DIFFERENCES!
Textile Markets
Spinners Boost Prices On Cotton Tufting Yarns
Cotton carpet tufting yarn
Market Barometers
Tufted Bedspreads Seen Affected by Cotton Yarn Rise
DALTON, Ga. — The 2-3 cen
per pound price increase
extiles
Cotton Price Seen Aiding Increased Interest in Rayon
By HARRY JEFFERIS
February Shipmer

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AS THE cost of cotton tufting yarns go up, major bedspread manufacturers are switching to chenille yarns made of ENKA's new Skybloom. This extra high-crimp rayon offers relative price stability—PLUS matchless uniformity in quality, less fallout, no waste, whiter goods, truer dyeing, styling versatility.

That's why leading manufacturers can continue to turn out fine quality, highly styled chenille spreads *at popular prices*. So if *you* haven't tried Enka Skybloom chenille yarn—check on it today. Contact Enka Merchandising in New York at 350 Fifth Avenue, PE 6-2300 or the District Sales Office nearest you for a list of Skybloom yarn spinners.

Retailers: Write or call Enka Merchandising (address above) for the names of manufacturers who are featuring the Enka Skybloom label.

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American ENKA Corporation, Enka, N. C. • Producer of nylon • rayon • yarns • fibers

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Because of its unique combination of strength and inherent stability, Avril rayon is highly compatible when blended with polyester, triacetate and acrylic fibers. Makes possible the spinning of finer yarns, the creation of sheerer, more beautiful fabrics that are comfortable to wear, easy to care for. Avril rayon is the strongest commercial staple ever produced for the textile industry, greatly improves wash and wear performance. Shrink resistant and far stronger than any rayon created today, Avril actually upgrades cotton blends, gives them the look and feel of the finest cotton. As you can see, the applications of Avril rayon are as wide and varied as you want to make them. Before you go any further with the plans for your line... better consider Avril rayon. All indications are this is the one to latch on to. Call Apparel or Home Furnishings Merchandising Department, American Viscose Corporation, 350 Fifth Avenue, New York 1, N.Y., LA 4-7200

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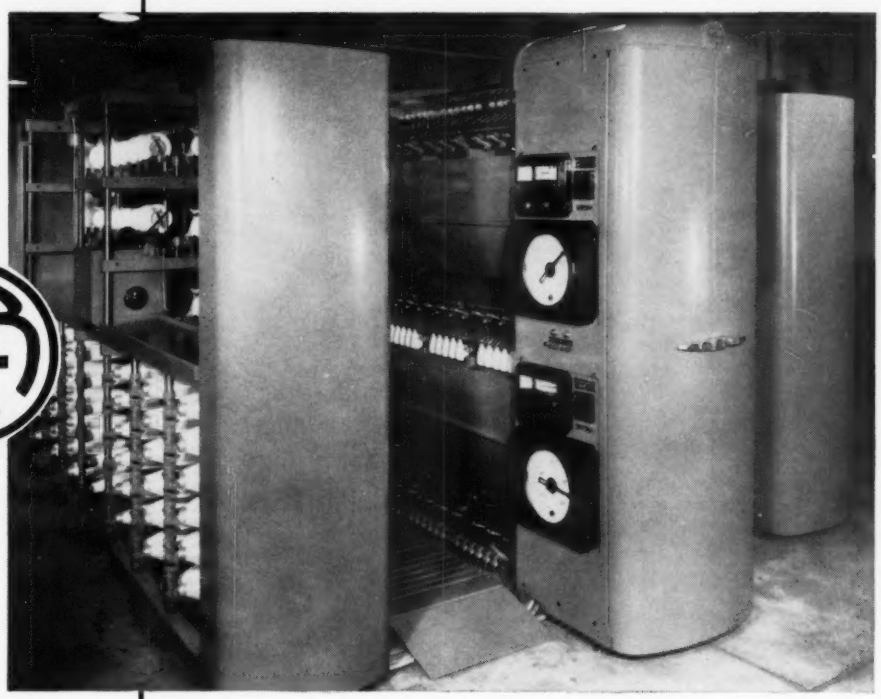
START RIGHT and you'll "FINISH" RIGHT!

with textured yarns processed by Whitin-ARCT.*

Start with the unmatched quality found only in ARCT precision-controlled yarns — and watch your "finishing" troubles vanish — in either knitted or woven textured fabrics.



* Whitin Machine Works is the exclusive licensee of A.R.C.T. in the United States, Mexico and Canada. FT and FTF machines are manufactured by Ateliers Roannais de Constructions Textiles, Roanne, France.

The ARCT Type FT machine, introduced only two years ago by Whitin, has already made a great impact on American throwsters with the quality of its false twist and stretch yarns for knitting — quality unsurpassed for uniformity, elasticity, crimp-retention and level dye affinity.

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FTF processed yarns, characterized by outstanding dimensional stability and maximum bulking, may be precisely tailored to your product requirement.

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He's using a tougher yarn...why aren't you?

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But Golden Caprolan is more than just tough. It is a remarkably versatile yarn that offers a unique combination of superior performance qualities. Unsurpassed resistance to abrasion, excellent rubber adhesion, greater resistance to flex-fatigue, excellent troughing qualities, to name a few. Golden Caprolan established a new criterion for heat stability in nylon tire cord and a new standard of strength for marine cordage.

Golden Caprolan is also performing superbly in conveyor belts, tarpaulin fabrics and dozens of other applications where heavy-duty performance is essential. If you have a tough job, we have the tough yarn for it. Our technical service staffs are always ready to help you.

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GOLDEN caprolan NYLON FOR THE 60's

MODERN TEXTILES
Magazine

Publisher's Viewpoint

A Door Has Opened to Import Relief

THE EFFORTS OF THE TEXTILE INDUSTRY, working through its trade associations, to obtain positive federal action that will provide effective relief against the prolonged harm inflicted by low-wage foreign imports, seem at long last to give promise of fruitful results. The good news came early last month when President Kennedy announced a program of assistance to the textile industry.

In the view of textile leaders generally, the most significant element in the President's seven point program was his statement that "an application by the textile industry for action under existing statutes, such as the escape clause or the national security provision of the Trade Agreements Extension Act, will be carefully considered on its merits."

Worth noting also are several other important points in the President's program. He stated that he has asked the Treasury Department to review existing depreciation allowances on textile machinery. "Revision of these allowances," the President said, "should assist in the modernization of the industry."

Differential Cotton Pricing

Of importance, too, was President' Kennedy's statement that he has directed the Department of Agriculture to eliminate or offset the cost to United States mills of the adverse differential in raw cotton costs between domestic and foreign textile producers.

In our opinion the attitude of the textile industry toward the President's program was well enunciated in the statement issued by 25 representatives of the textile and related industries shortly after the President's views were made public. In sum, the industry statement said that its trade associations "were highly encouraged" by the President's program of assistance to the textile products industries "and the recognition of the fact that now is the time for action to solve the problems of these industries."

The industry spokesmen went on to say that they were encouraged by President Kennedy's "recognition of the vital importance of the textile products industries to the national economy." The seven point program proposed by the President is designed to strengthen these industries and this the representatives feel "shows an awareness by the President of the present problem of these industries."

Petition Filed with OCDM

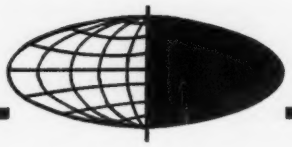
That the textile industry intends to lose no time in pressing vigorously to turn the President's statements into actual effective protection against low-wage imports was shown on May 16, when 20 trade associations, representing fiber producers, mills and apparel manufacturers, filed a petition with the Office of Civil and Defense Mobilization asking for a finding that textile imports are threatening the national security. The basic argument of the petition was that the textile industry is essential to the nation's military establishment and vitally important to the overall national economy. The petition declared that, because of excessive imports, the textile industry is threatened with "absolute incapacity to meet projected national defense requirements."

In support of its point of view, the petition noted that "the consumption of textile products by the military at the World War II peak exceeded the level of consumption in 1959 by 50 times."

It cannot now be foreseen whether the OCDM will take favorable action on the petition. Yet it is definitely encouraging to know, that at the President's suggestion, a step has been taken that may lead to the relief from low-wage imports that is urgently needed and long overdue.

A. H. McCullough

TEXTILE NEWS



World Wide

WEST EUROPE'S TEXTILE boom may slacken during the last half of the year but not enough to cause alarm, the Textile Committee of the Organization for European Economic Cooperation reports. Brisk textile demand has brought labor shortages, especially skilled help. Two exceptions to the strong market are jute and woolens. Non-cellulosic fibers are unusually good, cellulosic a bit less so, OEEC said.

NEW CHEAPER NYLON method is being readied by Toyo Rayon, Tokyo. This new system, called the nitrocyl chloride process, is based on the photo-chemical treatment of cyclohexane, a petrochemical, rather than on the conventional phenol coal-tar derivative. The price can be cut to less than 55¢ per kilo, it was said. Sometime in 1963, Toyo expects to be producing 66,000 pounds daily.

POLYCARBON FIBERS SEEN possible for industrial and apparel use on a broad commercial scale. This was reported by Teikoku Rayon Co., Tokyo, which has been experimenting with materials supplied by Teijin Chemical. Details so far are a trade secret.

FRENCH COURTAULDS expects to start producing acrylic fiber at a new plant in Pont du Leu late this month or early in July. The company had been importing from its British parent. Output is set for 11 million pounds annually. Some 200 will be employed.

US, CANADA PARTICIPATE for the first time in Paris International Textile Fair. All manufactured goods, except raw fibers or unprocessed yarns or apparel, are to be shown at this third annual fair of members of OEEC June 26-July 1. It will be held at the Parc des Expositions. Permanent headquarters is at 10 due d'Anjou, Paris 8.

MEXICAN CELANESE is installing machinery in its new Trinese Triacetate (Arnel) plant at Ocotlan, Jalisco. Output is set to start by Spring, 1962.

ICI SELLS TO USSR more than it does to the U. S., according to the 1960 annual report. Sales that year to Russia doubled, reaching $15.4 million, against $11.2 million to the U. S. ICI's overall exports set a record high—$270.4 million. Nearly half the shipments were in Terylene, dyes and plastics.

ITALY'S MANMADE FIBER boom of the past 18 months is expected to continue through 1961, the Milan-based Manmade Fiber Producers group reports. Pacing the high-gear activity are polyamid fibers, especially Lilion (nylon 6) and nylon 66. But polyester production is also rising, and commercial output of acrylic fibers, which began just a year ago, is headed upwards. The association believes a steep rise in demand will get underway in 1965 as population and living standards go up.

NORTH IRISH LINEN industry was hard hit by plans of York Street Flax Spinning Co. to go into liquidation. The firm was one of the world's biggest and a pillar of the Belfast linen industry. Directors have said that linen demand is bound to decline further, and prices will remain unprofitable.

FOAM-BACKED FABRICS are staging a big hit in Britain. Both knitted and woven manmade and natural fabrics are being laminated to polyurethane foam at a rate that should make it as popular in Britain as it has become in the U. S. The foam is bonded to the fabric, giving warmth without weight and crease resistance. Orlon knit topcoats, foam-backed, scored widely in London this Spring.

VENEZUELA IS ON WAY to achieving near self-sufficiency in textiles by the end of 1961. Victor Saxl, United National textile expert who is working with the country's Ministry of Development, believes. He said virtual self-sufficiency is near for major staple products in cottons and manmades —and 85% in woolens.

RICE BRAN OIL FIBER has been perfected by Shikishima Cotton & Weaving Spinning Co., Osaka City, Japan. The new synthetic, called Yurilan, is said to be 10% lighter than nylon or acrylic fibers, to possess firm body texture, good dyeing and heat-resistance properties and to approach wool's thermal qualities. Japan Synthetic Fiber Co., a subsidiary, will manufacture the product, initially in a wool-blend.

LOUIS MALINA

yarn merchant and dyer

Four decades ago a young salesman hitched his wagon to the rising star of synthetics. Over the years he has built a unique double business of yarn jobbing and yarn dyeing.

By Jerome Campbell,
EDITOR, MODERN TEXTILES MAGAZINE

THE TWO-PRONGED OPERATION of yarn selling and yarn dyeing and processing that is the field of the sister firms of Malina Co. and Atlantic Yarn Corp. make up a unique and enviably successful business in the American textile scene. Malina, founded in 1921, specializes in selling for quick delivery all the major synthetic filament yarns: rayon, acetate, and nylon as well as its own brand of Malora metallic yarns. Atlantic Yarn Corp. specializes in the highest quality synthetic yarn dyeing, and its big plant at Providence, Rhode Island, is said to be the largest in the country specializing in this work.

Although many kinds of yarn are sold by Malina, the specialty of the house is rayon. The company has long enjoyed a close business relationship with American Viscose Corp., and in fact, has never been off the fiber producer's books as an active customer since 1923. During that time it has sold more than any other customer of American Viscose and is, in fact, that company's biggest customer for rayon today.

Malina in the textile business is a name that has come to be regarded as symbolic of rock-ribbed integrity. The high reputation of Malina and the long and profitable existence of the company are direct

Fred H. Diamond

and immediate reflections of the character of a rare human being, Louis Malina, the founder. Today at 75, Louis Malina is still active in the business, still daily at his desk in his New York office available to the firm's customers. Many of these customers are by now old friends of this quiet unpretentious man who has been a notable figure in the manmade fiber business for almost half a century.

Younger Men Now Help

It must be added, that although he is still indisputably the head man at Malina and its twin operation Atlantic Yarn Corp., Louis Malina leaves a great deal of the day-to-day administrative and sales management work of his varied business interests to his partners, who are Fred H. Diamond, his nephew, and his sons, Fred and Arthur, all of whom are officers of both the Malina Co. and Atlantic. Louis Malina has great confidence in the managerial abilities of these men who have been associated with him for all of their respective careers in business. Fred Diamond joined the firm in 1927 fresh from high school and has worked his way up in selling and management. Over the years his major function has been in sales and he has built an established reputation following in the footsteps of Louis Malina. In his own right, few men are more highly regarded in the synthetic yarn trade than Fred Diamond.

Arthur Malina, a graduate of the Wharton School of Finance, has been with the Malina Co. for over 25 years, and in that time he has largely devoted himself to administrative work. His grasp of this end of the business as well as his intense devotion to his duties has been a major factor in the continued growth of Malina and Atlantic.

Integrity and utter trustworthiness are the great built-in characteristics of Louis Malina. It has always been his unshakeable belief that outstanding service in his yarn business, and outstanding workmanship in his dyeing business are the basic elements that have brought him success. So strong has been his belief in these principles, that he has engraved on the wall of the reception room of Malina's New York office, this famous saying of Emerson: "If a man can write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door."

It was in fact Louis Malina's reputation for integrity in business, well established when he was a young cotton yarn salesman, that enabled him to enter the rayon sales field in the early 1920's at the golden dawn of the synthetic yarn business when the opportunities were bright and the chances for making money better than they have been since. Louis Malina, a New Yorker, who was brought to this country by his parents from Europe when he was a child, earned his first dollar back in 1901 working as an assistant on the delivery wagon of a New York department store. His wages, he recalls with something like amazement today, were $2.50 a week. He remembers also that if he worked overtime from six to ten in the evening, the store rewarded him with an extra 35¢ for supper money. "We were all eager to get that extra money," he remembers now, marveling how money values have changed in a world where the standard of living has shot upward at a breath-taking rate.

From his $2.50 a week job as a "wagon boy", Louis Malina went on to another job with the old express firm of Pitt & Scott, collecting packages all around the city and lugging them to the express station for shipment out-of-town. Here the salary was a whopping $3 a week—"believe me, a notable advance in buying power", he says, lest anyone, in these days of inflation, think that a mere fifty cent increase in the year 1902 was not much.

(Continued on page 47)

Arthur Malina

DYEING and FINISHING SECTION

BLEACHING
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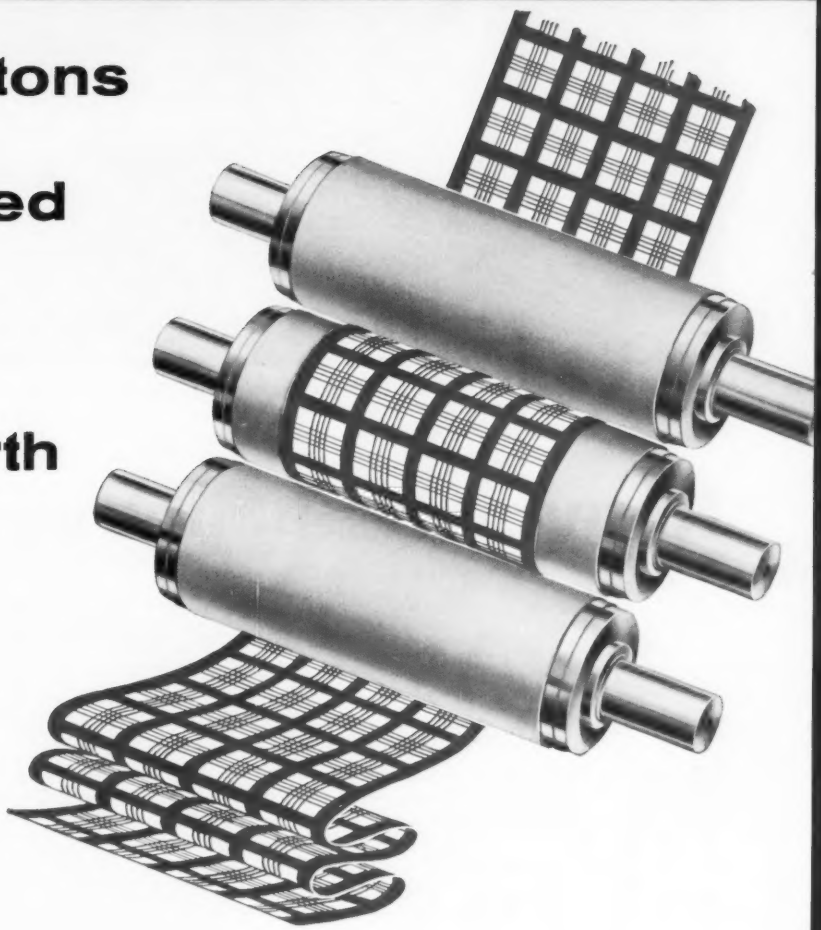
More Cottons are finished on Butterworth Pressed Rolls than any other make



It's the extra hours of service built into every Butterworth Pressed Roll that makes Butterworth the one best source for all your pressed roll needs.

Butterworth Rolls are built to last . . . using the finest materials . . . with the right degree of hardness and smoothness for the finish you require.

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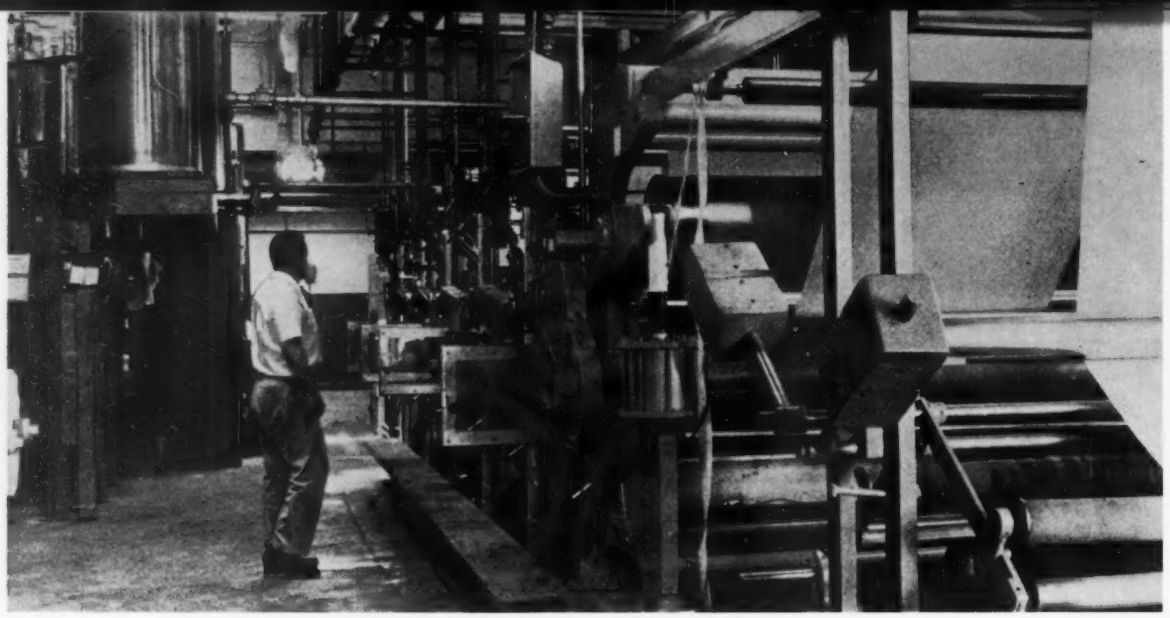

Continuous washer in the plant of Kenyon Piece Dyeworks

Kenyon — quality dyer

To maintain its pace-setting place for 25 years, this dynamic firm has relied on modern equipment, first-class workmanship

Staff Prepared

GUIDED by long experience, particularly in handling manmade fibers, and bolstered with modern equipment and well-trained personnel, Kenyon Piece Dye Works, Kenyon, R. I., occupies an enviable position in the dyeing and finishing industry. Standing high among firms specializing in finishing fabrics made from manmade fibers, Kenyon has been able to forge ahead where others have failed.

There are many factors behind this notable success, and one of the more important is Kenyon's consistent policy of putting profits back in the business for new equipment to stay competitive and increase the plant's versatility. Along with other progressive finishers, Kenyon has learned that the newer manmade fibers pose severe dyeing problems. It has been only through extensive research that most of these problems have been solved. As David Curtis, vice president, remarked, "difficulties have been experienced not only in finding colors that will hold when applied, but also colors that will remain fast. The requirements vary from fiber to fiber. They are made more difficult by the fact that new fibers are often blended with other fibers possessing completely different requirements."

New dyeing and finishing equipment of the most recent design is now in operation at Kenyon making it one of the best equipped plants in the industry for handling manmade fibers. Recently installed is a Henriksen covered dye jig. One of the features of this machine is its tension control. There are no brakes nor differential gear. Cloth tension is controlled by a spiral spring and can be adjusted by a dial calibrated in pounds ranging from 0 to 200. Kenyon has found that once this dial is set, cloth tension never varies. The new jig is capable of cloth speeds as high as 130 yards a minute. After-treatment time as well as rinsing time has been reduced considerably. The machine's versatility in being able to handle a wide variety of fabrics makes it extremely useful.

Another new piece of equipment is a Svetema five-compartment open width counterflow washer used primarily for scouring and preparing goods for dyeing as well as for some after-washing. This washer is working at a comparatively small bath volume on the counterflow system whereby a very low water and heat consumption with good washing is achieved. The compartments are enclosed, making it possible to operate with boiling baths without any great loss of heat. Low-tension passage of the fabric is accomplished by a special drive acting in the upper guide rolls. A major part of the cloth is conveyed above the surface of the bath in order to facilitate soil removal.

Still another new piece of equipment is a Svetema pad-roll dyeing machine. With this equipment, the goods are first impregnated on a padder and evenly squeezed. The fabric then passes a compensator and is led through a narrow slot into a horizontal heating zone where it is treated on both sides with infrared rays and heated to the desired temperature.

Immediately connected to the heating zone is a transportable batching chamber. The fabric passes into this chamber after heating for batching on a

(Continued on page 26)

Franklin Colorbred Yarns

THEY STAND OUT FROM THE CROWD

. . . in running quality
. . . in color quality
. . . in sales building quality

X-ray view of Franklin Package — the "secret" of uniform shades. Don't say "package dyed". Say . . . "FRANKLIN COLORBRED"

Learn how Franklin Colorbred Yarns help build sales for you by offering shades that *anticipate* color trends. Send for our latest seasonal color card.

*Trade Mark

Franklin Process COMPANY

Largest Package Dyers in the World of Natural and Synthetic Fiber Spun Yarns for More Than Half a Century

DIVISION OF INDIAN HEAD MILLS, INC.

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*Trademark for Dupont's acrylic fibre.
**Trademark for Dupont's polyester fibre.
***Trademark for Chemstrand's acrylic fibre.

490-O

Kenyon—Quality Dyer

(Continued from page 24)

large diameter batching roll. This insulated transportable chamber is preheated by means of electrical heating elements and filled with saturated steam until a wet bulb temperature corresponding to the desired dyeing-in temperature is attained. The temperatures are automatically set by means of Foxboro controlling instruments.

Production is Speeded

After the batching is completed the entire dye lot is rolled up in the chamber. Then the chamber is separated from the infrared zone and moved to a storage position. The chamber is completely closed and the fabric is slowly rotated for the time necessary under fully controlled and predetermined atmospheric conditions. After the separation of the full chamber from the infrared zone, a new chamber is connected and another dye lot is started. Kenyon, by using four individual chambers, has been able to set up what is, for all practical purposes, a continuous dyeing operation. Also recently installed is a Monforts reactor for dyeing.

Kenyon has ordered an Omez forced jet washer to follow the reactor. This unit fits into a relatively small space of less than five feet, but does the work of three to four conventional wash boxes consuming anywhere from 15 to 20 feet in length of floor space. The Omez washer passes the water through the cloth instead of passing the cloth through the water.

A new pressure dyeing machine made by Gaston County Dyeing Machine Co. has been recently added, bringing to four the number now being operated in the Kenyon dyehouse. These machines, which force the dyestuff through the fabric under pressure and high temperature, give complete penetration and uniformity of color. And within the past year, Kenyon has installed an Andrews & Goodrich high temperature loop curer.

In an operation like Kenyon's where consistent quality is of prime importance, a fully-equipped and efficiently operated laboratory is obviously necessary. A representative sampling of virtually every batch of material processed in the plant goes to the lab for one test or another to be checked for shrinkage, fastness to washing at various temperatures, fastness to autoclaving if goods are to be pleated, fastness to perspiration and pressing, and other qualities.

Production control is another important facet of lab work where production problems are solved, and in many cases anticipated. This section of the lab also handles such routine but important tasks as analyzing boiler water every day, checking dyestuffs upon their arrival at the plant, and so forth.

Research Is Carried On

Another valuable operation is research and development where new techniques, new products and new machinery are investigated. Equipment such as padding machines have been duplicated in miniature for use in the lab to reproduce operating conditions encountered in the plant's full-scale processing methods of dyeing and finishing in pilot studies and to eliminate much experimentation that otherwise would have to be done in the plant.

This year Kenyon Piece Dye Works celebrates its 25th Anniversary. It was back in 1936 when Raymond Curtis and his associates decided to establish a dyeing and finishing business. They realized their best chance to prosper lay with customers who wanted high quality work. Today President Curtis and his son David supervise a business that has grown and prospered by adhering to the lines laid by the founders a quarter of a century ago. They are aided by a well-trained staff with J. W. Timperley, general manager; Fred Kinch, superintendent; Fred Seiferheld, sales manager, and C. A. Rounds, plant engineer. In 1960 Raymond Curtis' younger son, Brian, a graduate of Cornell University, joined Kenyon and is serving in the capacity of production manager.

Raymond Curtis

David Curtis

X-Link

PIGMENT BINDER • ANTI-CROCK FINISH

NONWOVEN BINDER

NEW CROSS LINKING VINYL RESIN

X-LINK is news in textiles! It is a cross-linking, self-reactive vinyl resin that makes the addition of thermo-setting resins optional. A longer lasting bond to fabrics and fibers results.

FOR WASH 'N WEAR AND OTHER APPAREL OR INDUSTRIAL FINISHES. X-Link is clear and colorless. Builds a fuller, more lasting hand. Improves resistance to water and dry cleaning solvents.

FOR NONWOVENS. X-Link increases flexibility as well as tear and tensile strengths. Gives a pleasing hand and drape.

FOR PIGMENT PRINTING. X-Link improves resistance to crocking, wash fastness and dry cleanability.

X-LINK promises important quality extras for your fabrics. Why not learn more about it? Write or call your nearest National office.

National RESINS

NATIONAL STARCH and CHEMICAL CORPORATION

750 Third Avenue, New York 17 • 87 Haynes St., N.W., Atlanta • 53 Fargo St., Boston

Faster output of seamless nylons

Singer-Fidelity's four feed machine

Knits stockings in less than three minutes

Staff Prepared

AT THE KNITTING ARTS EXHIBITION in April, Singer-Fidelity, Inc. introduced the first model of its four feed seamless hosiery machine. According to a spokesman for the company, the machine is the result of years of planning and engineering work. It is now in large scale production and, by the end of 1961, a large knitting plant in Europe will be operating entirely with this machine making women's seamless nylon stockings.

The new four feed hosiery knitter operates completely without reciprocation, making a tubular stocking with boarded heel, which is reinforced together with the foot, and has a tailored toe. The stocking is produced four-feed throughout, even in the make-up. This feature, according to Singer-Fidelity, has an important bearing upon quality, and greatly simplifies the mechanism. In addition, the machine is equipped with a trimmer for the yarn changes. Special provision has been made for controlling the stocking at press off.

The new Singer-Fidelity machine uses a suction type hose tensioning device with a specially developed dynamic anti-static system which ionizes the air passing through the plastic tubes. This completely eliminates twisting of the stocking, and facilitates automatic discharge of each stocking from the machine. This is said to be important as the stockings are produced so rapidly that operators cannot be expected to remove them manually.

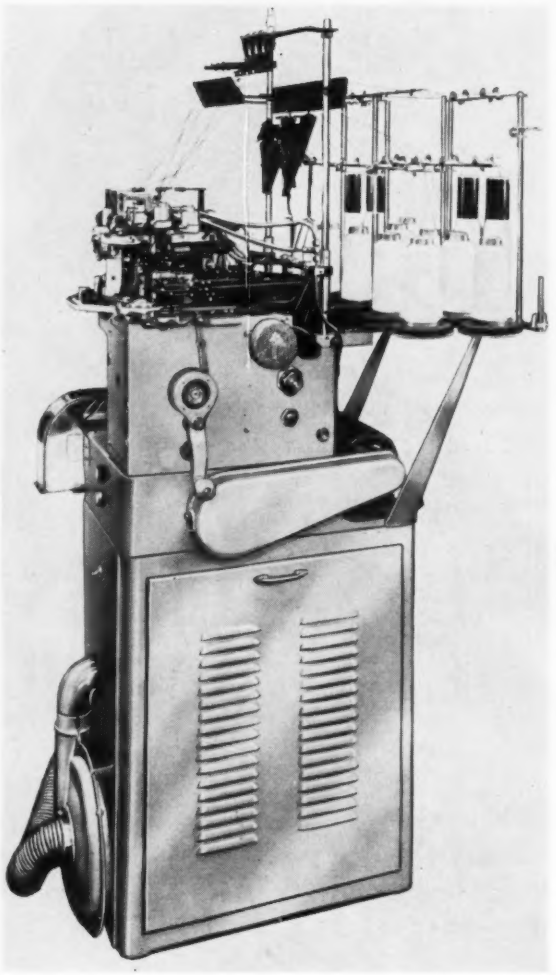
The new machine will have available as an optional feature a special yarn humidification system, making it unnecessary to humidify the whole mill to the most desirable level. The needle selection splicing system operates on two alternate feeds producing a high quality splicing effect. This not only splices in the heel but produces a court sole which is said to be both good-looking and durable.

The four feed machine is reported to be simple to operate once its general principles are appreciated; and needle breakage is claimed to be low.

Based upon the use of what is now called the American Fixer System and assuming a 144 hour week, the following index figures will give some idea of what can be achieved with multi-feed machines:

Two-feed machine: —Index figure 80.
Four-feed machine: —(3½ minutes per stocking) Index figure 29.
Four-feed machine: —(2¾ minutes per stocking) Index figure 25.

Thus the two-feed machine will manufacture a stocking on this cost basis for 80% of the cost of the equivalent single feed stocking, and the four-feed machine, (according to the length of time taken) for 29% to 25% of the cost, according to estimates of the manufacturer.



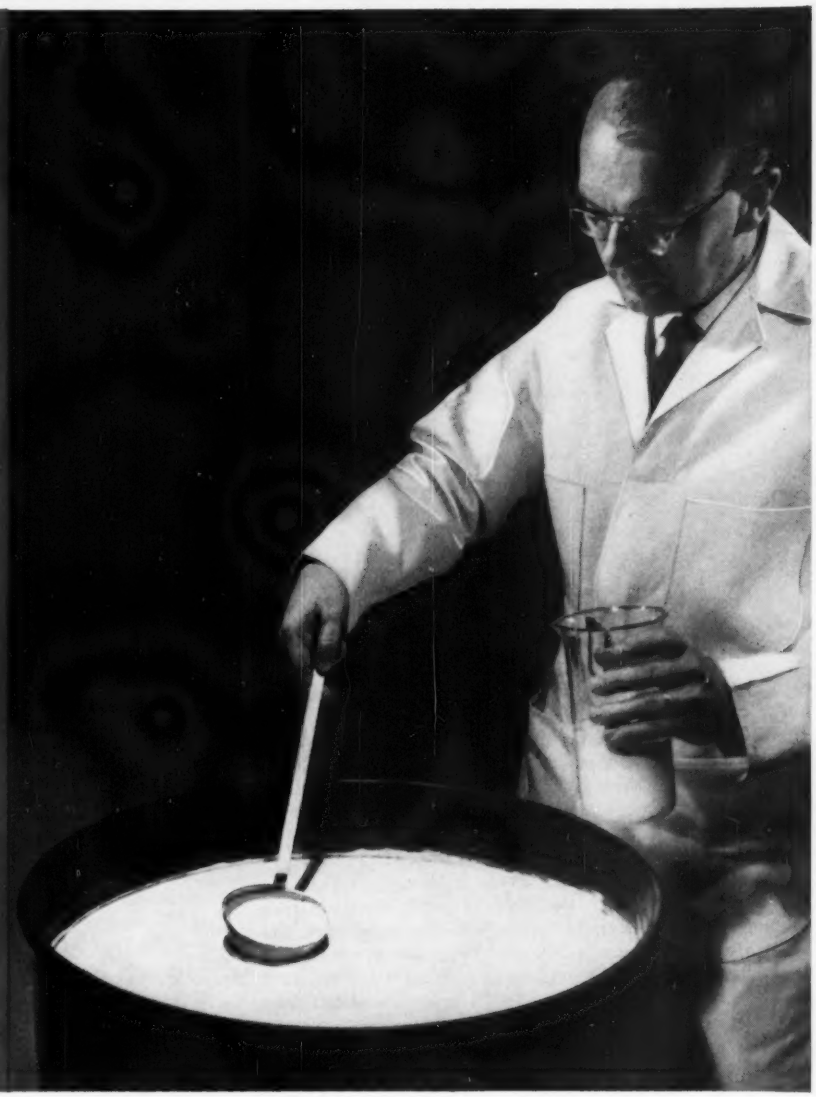
TO SPEED SEAMLESS hosiery output in response to steady demand for these stockings, Singer-Fidelity offers a four feed machine

Heavy-Duty Nylon Thread

"Nylex," a heavy-duty nylon thread for home-sewing has been introduced by the Nylex Co. The maker says that the thread is resistant to breaking, shrinking, and snagging. A special bonding agent has been applied to the thread, imparting a slight stiffness for easy threading and preventing slippage on the spool. *For further information write the editors.*

What's News in Rubber...

NOW... BUTYL RUBBER IN LATEX FORM



Now you can get Butyl Rubber in convenient latex form – an easy-to-handle emulsion that has all the outstanding properties of Butyl!

Enjay Butyl can now be utilized in tire cord dipping, paper coating and saturating, textile treating and proofing, roof coating, adhesive compounding, emulsion paint formulations, and leather finishing.

Enjay Butyl Latex is shipped FOB Baton Rouge, La. in phenolic-lined, insulated 8,000 and 10,000-gallon tank cars, or in lined 55-gallon open-head steel drums. Drum stocks will be warehoused at other strategic shipping points in accordance with demand.

For more information and your copy of our Latex manual, write to Enjay at 15 West 51st Street, New York 19, New York.

TYPICAL INSPECTION DATA	
Total Solids, wt %	55
Specific Gravity, 70°F	0.96
pH	5.0
Viscosity, cps	560
Mechanical Stability	Excellent
Freeze-Thaw Stability	Excellent
Chemical Stability	Excellent

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EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

Whitin's new high-speed drawing frame

Speeds of 800 feet a minute achieved by two-delivery unit soon to be available

FAST ON THE DRAW—Whitin's new Even Draft Drawing Frame, Model M7, has successfully passed its mill tests

A WHITIN two-delivery, high-speed drawing frame capable of speeds of 800 ft. per minute is soon to make its appearance, according to Mr. R. I. Dalton, Jr., vice president domestic sales for Whitin Machine Works. It will be known as the Whitin Even-Draft Model M7. The new Model M7 is the first modern two-delivery drawing frame built by Whitin and is a result of two years of study and research by the Whitin research and development departments.

A prototype model has been running on preliminary mill tests for the past several months in a southern mill. These tests to date indicate that the new Model M7 can conservatively be operated at speeds of 800 feet a minute on both breaker and finisher drawing using carded stock. Excellent test results are currently being obtained at these speeds.

Whitin's achievement in producing a drawing frame with a speed of 800 feet a minute dramatizes effectively the tremendous technological advances which have taken place in the drawing operations during the last several years, Dalton said. In 1954, at the American Textile Machinery Exhibition, Whitin displayed the then latest drawing frame of that time with a delivery speed of 150 feet a minute. Since then, a steady stream of mechanical and technological advances have been introduced to the industry, resulting in today's speeds being five times as fast as those of 1954.

The new machine will be produced by the company's subsidiary plant, Fayscott Landis Machine Corp. in Dexter, Maine, where the work of tooling up for regular production is now underway. It is anticipated that some deliveries may begin in the summer or early fall against orders already taken for over 300 deliveries.

The test frame is being operated with a specially designed creel. But in accord with the trend towards larger diameter cans in the creel, a power creel has been designed to provide more efficient operation with the largest cans currently available. The delivery cans in front will be 20" x 42". The Model M7 is equipped with the latest type Pneumafil vacuum cleaning system such as is now in use on late model Whitin four-delivery frames. The new frame is designed to run with 10 ends up and is powered by a 5 horsepower motor using Vari-pitch sheaves. A deceleration device is also provided to insure soft but quick stops.

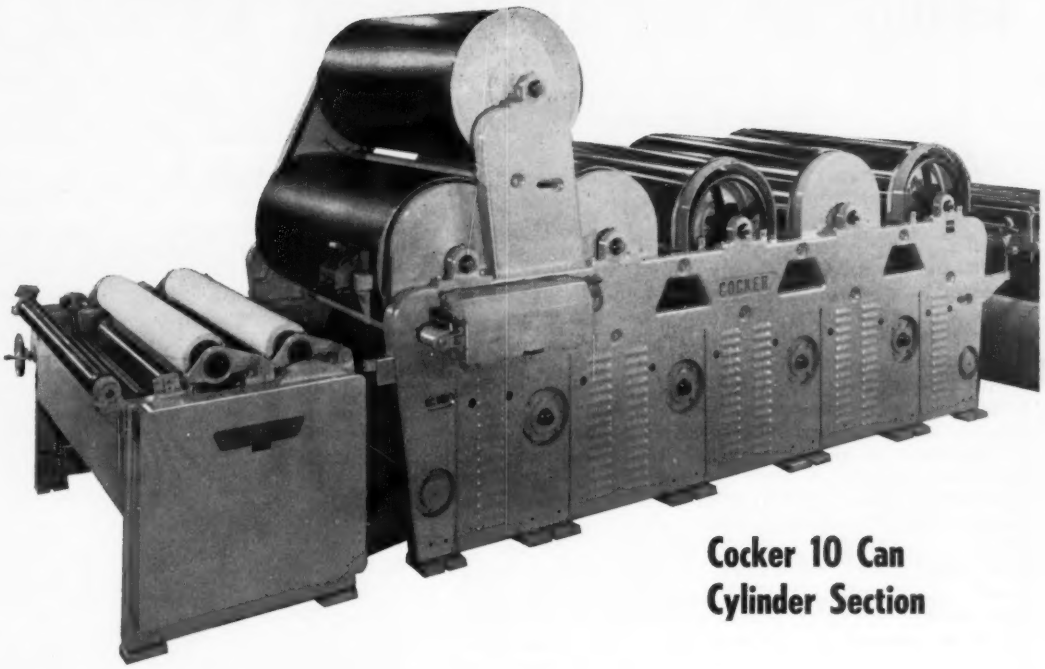
The Even-Draft M7 is said to be a ruggedly yet precisely built unit to insure maintenance-free operation. The frame and constructional components are of cast iron, as are the solidly built roll stands and the precision cut gearing. The bottom steel rolls are made with extreme care and to close tolerances to run smoothly at the highest speeds in rugged antifriction bearings, Dalton pointed out.

The drafting element is the Whitin four-over-five roll construction successfully used on other Even-Draft models. The over-arm suspension weighting system is said to be effective and efficient, with correct weighting made possible by pre-calibrated springs. This weighting may be quickly applied or released on each delivery. Specially designed tube gears, supported around their circumference by heavy-duty ball bearings, are driven by a V-belt drive, which provides the necessary stability and capacity for such high speed operation.

Textured Nylon Lace

New lace designs of Taslan textured nylon, said to resemble expensive hand-clipped lace and costing only about half as much, have been created by Liberty Fabrics for introduction in intimate apparel. Blouses, dresses, and home furnishings also are regarded as possible end uses for the lace.

The Extras are FREE



Cocker 10 Can Cylinder Section

Prices of Cocker Cylinder Sections are in line with those of other makes, so Cocker's many valuable extra features actually cost you nothing. Here are a few.

Extra Convenience

Any cylinder can be removed individually . . . bottom cans may be taken out without first removing the top ones. All cylinders are interchangeable. Snap-out venting panels and light metal sprocket guards can be easily removed by one man. Jack foot screws permit easy adjustments. Low silhouette permits any man of normal height to watch the warp on standard top cans without using a climbing platform.

Extra Equipment

All piping and all necessary steam equipment is furnished on every machine.

Extra Features

Cocker Sections have • Stronger frames, ball bearings and chain drives • Split sprockets • Two stainless steel vacuum breakers • Jack screw idlers • Teflon Coated ASME cylinders (approved and labeled) • Cocker designed bracing between bottom and top cylinders eliminates sway or rock at high speeds and under heavy loads. No Cocker slasher has ever needed additional bracing after installation.

PLUS Accurate Control

Each cylinder can be set at any temperature and drying steps can be accurately graduated to obtain any desired result.

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WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

Report on Atlantic City

Expanding markets for circular knits, laminates big themes at knitting show

By the Editors

WIDESPREAD INTEREST in the expanding potentials of circular knitting, especially double knit fabrics for fashion womenswear, emerged as the dominant theme at the bienniel Knitting Arts Exhibition last April in Atlantic City. Building up to an equally loud crescendo was the strong interest apparent everywhere in the show in the growth potential of knitted fabrics laminated to foam materials.

Prominent among the crowds of knitting people who thronged the week-long exhibition in Convention Hall were representatives from many weaving outfits and well-known converters eager to inform themselves on the possibilities inherent in circular knitting. Spokesmen for a number of these mills and converters indicated that their respective firms were setting up knitting departments, complete with knitting machines and auxiliary equipment. Visitors at the show from a wide range of mills, knitting firms and yarn suppliers, talking to MTM's editors, gave the strong impression that they considered knitting a field that would grow in importance in coming years.

Knitting Machinery Trends

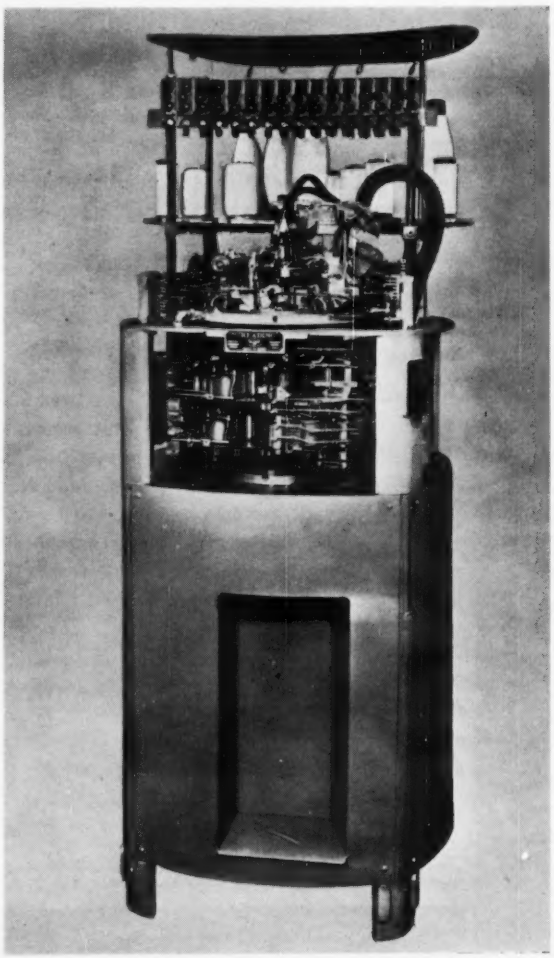
In the field of knitting machinery, main interest at the show was centered in the new four feed seamless hosiery machines, the double knits, the pile fabric knitting machines, and the bulky knitters. For circular outerwear knitting machines in general, the marked increase in versatility and adaptability to changing markets was the major development in evidence at the show.

Textile Machine Works had a four feed seamless hosiery machine in operation called the Reading Mark 1V, knitting a straight tube. The machine is capable of knitting a complete stocking in two to three minutes. According to L. T. Yeager, sales manager, in a statement made in advance of the show, the new machine was developed primarily to satisfy an insistent demand for a four feed high production machine in Europe. He said that his company will leave to the judgment of American manufacturers whether or not a stocking "without reciprocation" will be acceptable to the American market. Textile Machine Works also showed its Mark 111 twin feed seamless hosiery machine and its regular twin feed Reading-Booton machine.

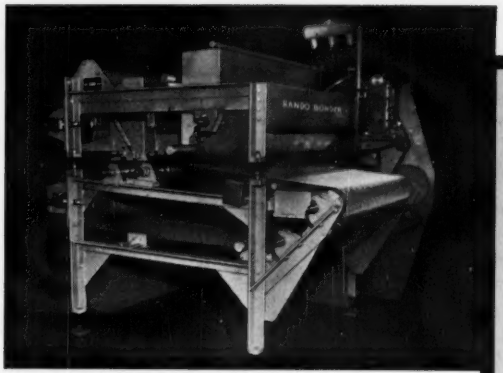
Another new four feed hosiery machine for making seamless nylons was demonstrated by **Singer-Fidelity, Inc.** *A more detailed report on this new machine appears on page 28 of this issue.*

Scott & Williams, Inc. demonstrated a wide range of its machines for knitting women's seam-free nylons. These included its 400-needle and 474-needle dual feed throughout machines; its 474-needle single feed, its 504-needle single feed, and the 400-needle dual feed machine except for knitting the heel and toe. In the men's, women's and children's hosiery field, Scott & Williams showed its 132-needle Komet, a 108-needle ETR with cushion sole, a 72-needle ETR with cushion sole and a 200-needle ES-11. On display for the first time was a Model HS Looper. Also shown was the AMSL automatic micro safety looping attachment.

(Continued on page 34)

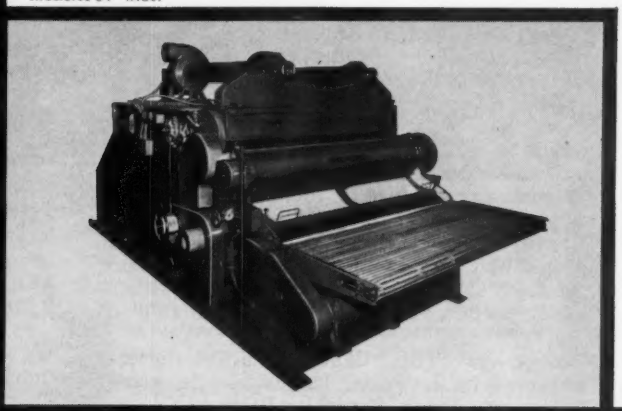


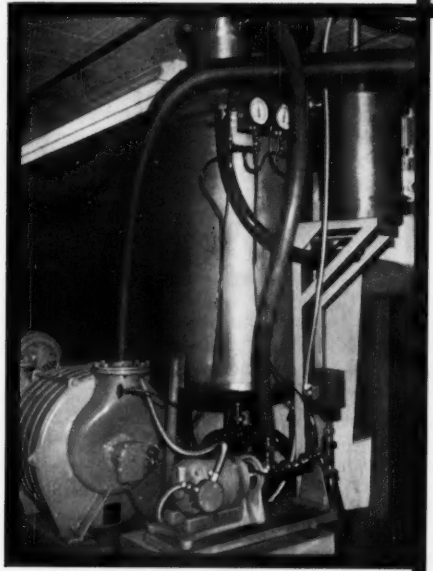
FASTER STOCKING OUTPUT—Textile Machine Works' four feed seamless hosiery machine cuts knitting time to less than three minutes



RANDO-BONDER is a versatile, compact, yet readily accessible, high production machine to apply chemicals to a wide variety of nonwovens, specialty paper, felt, tobacco, woven and specialty fabrics.

Model 84-B RANDO-FEEDER & RANDO-WEBBER produces continuous RANDO-WEB structures 84" wide.





Compact Chemical Feed System maintains constant uniform chemical concentration, also applicable to such processes as rubber, resin, plastic, textile, tobacco, dyestuff, chemical and paper industries.

The RANDO-WEB Process

Here are some of the machines developed by Curlator Corporation for the production and treatment of uniform, random, oriented, fibrous web structures.

The facilities of the Curlator Corporation are devoted solely to the engineering and manufacture of fiber web processing equipment. Many years experience has resulted in the development of the RANDO-FEEDER® and RANDO-WEBBER® for the production of uniform, random oriented, fibrous web structures. These versatile units produce webs with even selvages from a wide variety of textile and nontextile fibrous materials. Variations in web weight are attained by adjusting a variable. speed control eliminating the necessity of change gears, cross lapping or laminating.

The RANDO-BONDER® provides the means of uniformly applying a wide range of chemical binders to web structures. Special engineering design was incorporated to prevent distortion of the fiber lay and provide a functional sanitary unit.

Our engineering services employing these basic machines are available for layout and design of RANDO-WEB® Process plants providing continuous efficient production of diversified products.

Special knowledge gained through years of experience and exclusive manufacturing of fiber web processing machinery has resulted in improved design and world-wide acceptance of the RANDO-WEB Process as the preferred method for quality nonwoven fabric manufacture.

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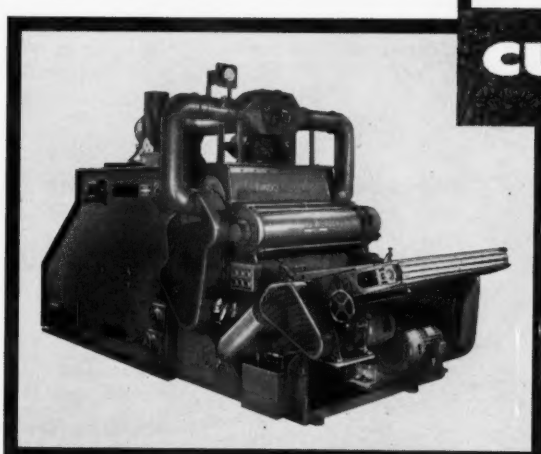
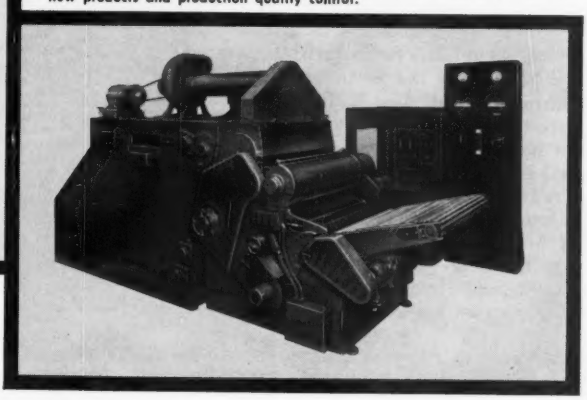
Write for your copy of our *new* Bulletin No. 106, "The RANDO-WEB Process."



Model 40-B (Special) RANDO-FEEDER and RANDO-WEBBER designed to produce continuous uniform RANDO-WEB structures from 100% short fibers.

Model 40-B RANDO-FEEDER and RANDO-WEBBER with pre-wired electrical control panel and instrument panel . . . invaluable for development of new products and production quality control.



SOUTHERN STATES: Carolina Machinery Company, subsidiary
P. O. Box 1922, Charlotte 1, N. C.
EXPORT REPRESENTATIVE: Lendt & Company
535 Fifth Avenue, New York 17, New York

Knitting Show Trends

(Continued from page 32)

Main interest at the Scott & Williams exhibit centered on its new model Lombardi Pattern Wrap circular knitting machine for making sculptured or smooth design effects in jersey fabric. *For a detailed description of this machine and how it functions see MTM, April '61, p. 70.* The machine running at the show was 26-inch diameter, 32 feeds, 18 cut, 42 gauge. A special super-structure with 45 wrap fingers permits as many as 45 yarns to be fed to as many as 30 needles or as few as one. Scott & Williams also demonstrated its pique machine in 30-inch diameter, 18 cut, 32 feed, 48-gauge. Another machine was the PR-19 fancy pattern rib machine now available in 16-cut.

Also among new circular knitting machines interest was aroused by a circular latched needle jersey machine demonstrated by **Tompkins Brothers Co.** intended for knitting carpet fabrics and paper scrim. The machine comes in two models, one 70 inches in diameter and the other 54 inches. The wider machine makes carpet, carpet backing and scrim fabrics 15 feet wide; the smaller machine produces these fabrics in 12 feet widths.

Wildman Jacquard Co. introduced the new PBP-44 Challenger which is a 44-feed plain yard goods, double jersey circular knitting machine, 30-inch diameter. It will make double pique fabrics, Swiss or French knit, single pique, eightlock, full rib, multicolor checks or block plaids, various tuck effects, double jersey, French welt fabrics and stripes. The machine is produced in cuts up to 20x20 needles per inch. At 20 RPM it is capable of making about 20 lbs. of double pique an hour.

Wildman Jacquard also showed its FBW-6 "Hi-Pile" circular knitter using sliver for the pile. The sliver can be natural or manmade fiber. Uses for such fabric continue to broaden and they are found in coats and jackets, linings, rugs, toy plush, paint rollers and buffing cloths. The company also showed its new 30-inch diameter LHDS-6 for making plain and striped fabrics. *For a detailed description of this machine and how it works see MTM, April '61, p. 67.*

Offering more versatility to the half hose industry was Wildman Jacquard's Pattern King model designed to knit patterned parts of hosiery of virtually any desired size, shape and variety of colors with definite, clear edges. Virtually uninterrupted production is said to be possible by using a new Banner yarn stop motion.

Wildman Jacquard also showed the new Hemphill "True-Tex" attachment for achieving uniformity in knitting ladies hosiery. It tends to evenly distribute the yarn tensions over the entire fabric and does not require pre-conditioning or pre-treating of yarn or special yarn-tension compensators.

Double knits were shown by **Supreme Knitting Machine Co., Jet Age Knitwear Machinery Co., Ordnance Gauge Co., Bentley Knitting Machinery, Speizman Knitting Machine Corp.** and others. It was indicated by many observers that double knit fabrics are currently invading many woven fabrics end uses and the market potential is said to be considerable.

Robert Reiner Inc. showed its 3-bar Liba 170-inch warp knitting machine having eccentrics fixed to a straight shaft instead of cam drives. It was running at 600 courses per minute at the show using 15-denier nylon. Reiner also had its 2-bar 170-inch Liba tricot machine in operation. Reiner showed its double-lock 3-cut Schaffhausen DAFU flat knitting machine, and a new Schaffhausen DOFU double lock-transfer unit. Both machines are 63-inches wide. The latter model featured individual needle and jack selection, having high and low butt needles, also high and low butt jacks.

Dyeing and Finishing

Gaston County Dyeing Machine Co. showed its new Jet dyeing machine and the model on display attracted large crowds as they climbed up a special stairway to examine the interior of the unit. The machine uses a new concept in fabric dyeing, suitable for both woven and knitted fabrics. The fabric is compressed into rope form and passed through a pipe in which the dye is forced under pressure. Force of the jet moves the fabric through the pipe which is, in effect, a dye chamber. *For a detailed description of this machine see MTM, April '61, p. 46.*

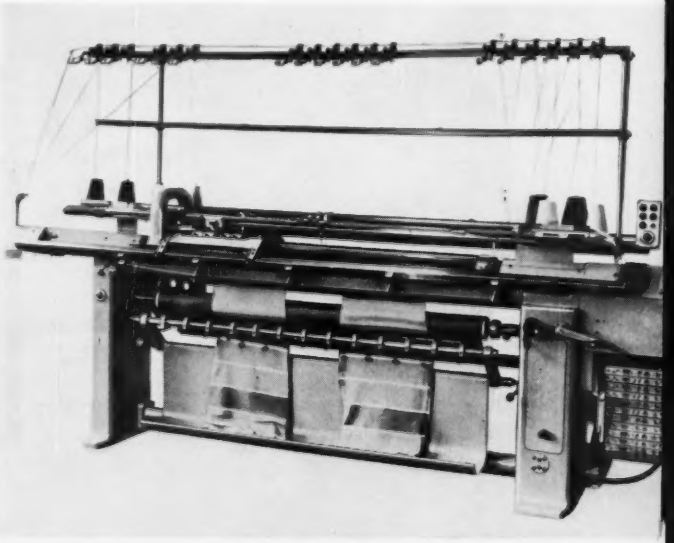
Turbo Machine Co. was running an improved version of its electro finisher for high pile fabrics. A new heat control has been added for six zones of heat. There is also a new aluminum cylinder. Turbo showed its Model A padder-extractor for tubular knit goods. Resins can also be handled on this unit, it was pointed out. Another unit was the Model B steamer-spreader for shrinkage of tubular knits in relaxed condition. Turbo had its Model DB dye boarder at the show which scours, dyes, rinses, sets and boards women's hosiery of all types. Turbo claims that 30 pair of hose can be handled every 7½ minutes. Another unit on display was Turbo's rotary dyer-washer featuring a variable speed drive.

Saco-Lowell Shops had a scale model of its Fleissner dryer at the show. This machine is suitable for knit goods and is said to give tension-free drying. Perforated suction drums hold the fabric gently while the air suction does the drying. The machine has also found application with yarn producers.

Tubular Textile Machinery Co. placed special emphasis on its Tube-Tex Tri-Pad machine for extracting and padding tubular knit goods. It uses three rolls instead of four. Tubular also showed its new open width finishing machine which is used in tandem with splitting and opening machinery.

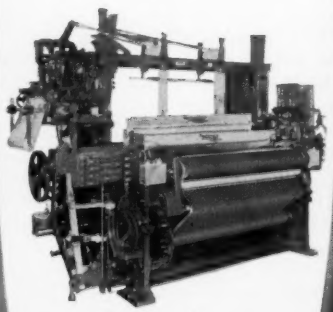
Engineered Plastics Inc. displayed its new Collect-O-Matic Hosiery Conveyor for use with seamless hosiery machines. The conveyor can be used with as many as 100 hosiery machines or with an installation

(Continued on page 36)



REINER EXHIBITED this Schaffhausen Model DOFU Automatic Stitch Transfer as part of its demonstration of its equipment for the knitting industry

Stehedco Flat Steel Heddles
THE STANDARD OF QUALITY



Ever since flat steel heddles were first introduced to American Textile Mills by Steel Heddle Manufacturing Company, the highest standards of Quality Control have been maintained, and the latest developments and improvements have been introduced first by Stehedco.

Stehedco Engineers are constantly working on improvements in design and construction so that you, the producers of fine fabrics, can have more efficient and better quality production, and greater profits.

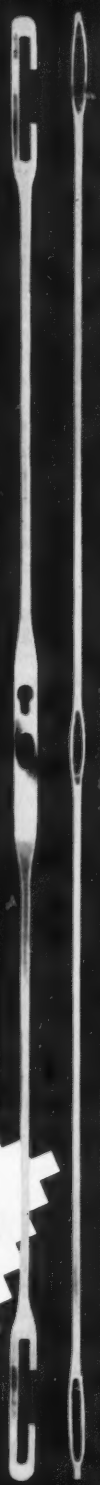
Made from the finest quality material, by experienced craftsmen who take justifiable pride in their work, Stehedco flat steel heddles are finished to perfection for smooth performance.

The fact that most mills are equipped with Stehedco heddles proves their well earned popularity. Their reputation for giving longer, trouble-free service, and producing better quality fabrics, is the reason for their great popularity. It is a well known fact that Stehedco heddles are really less expensive in the long run.

Every popular type heddle is available to suit any application, to handle the most delicate yarns, or the heaviest. Ask to have one of our qualified Sales Engineers show how YOU can benefit by equipping your looms with Stehedco heddles.

Be sure you have the best heddles for your particular application; be sure you have STEHEDCO heddles.

(Illustration of C-7 Loom courtesy of Crompton & Knowles Corporation.)



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H-6002

Knitting Show Trends

(Continued from page 34)

of a lesser number ranging as low as ten or 15 machines. The machine automatically collects the stockings from the knitters as they are completed and moves them through plastic tubing to a central collecting station. With the use of the conveyor, an operator can serve twice as many knitting machines as when collecting is done by hand, and thus be free to spend more time on the essential work of inspecting the finished stockings.

Yarn Processing Developments

New machines were in operation at the Exhibition preparing yarn for knitting. These included warpers, winders, spoolers and stretch yarn machines, as well as auxiliary equipment such as spools, tubes and beams.

Whitin Machine Works had its new FTF (false twist-fixed) machine in operation on the stage making stabilized textured yarns. The operation drew large crowds including yarn producers, throwsters and knitters themselves. Introduced in parts of Europe last year, this is the machine's first appearance in this country. The FTF machine is made by Ateliers Roannais de Constructions Textiles, Roanne, France and Whitin is the exclusive licensee in the U.S.A., Mexico and Canada. Whitin stressed quality and uniformity of yarn processed on this machine.

A 72-spindle frame for research and development was running at the show but the standard production frame has 216 spindles. Whitin said that two of the major yarn producers have purchased the smaller size frame for development work on stretch yarns. Standard spindle speed is 72,000 RPM. While yarns for knitting were obviously highlighted, it was pointed out that the weaving industry was showing increasing interest in stretch fabrics.

Leesona Corp. was running its new No. 512 ring twister at the show. Also in the display were exhibits of new textured yarn fabrics and various types of yarn packages. The new ring twister combines high speed operation with larger take-up package capacity. The spindles are capable of up to 22 lbs gross load. Speed is said to be limited only by traveler life and package balance. A 12-inch traverse with improved lifter motion created favorable comments. Automatic stop motion eliminates the chance of roll-wraps or drop ply and stops both feed roll and spindle if a break or run-out occurs. Both throwsters and knitters expressed particular interest because of the improved package and yarn quality being produced.

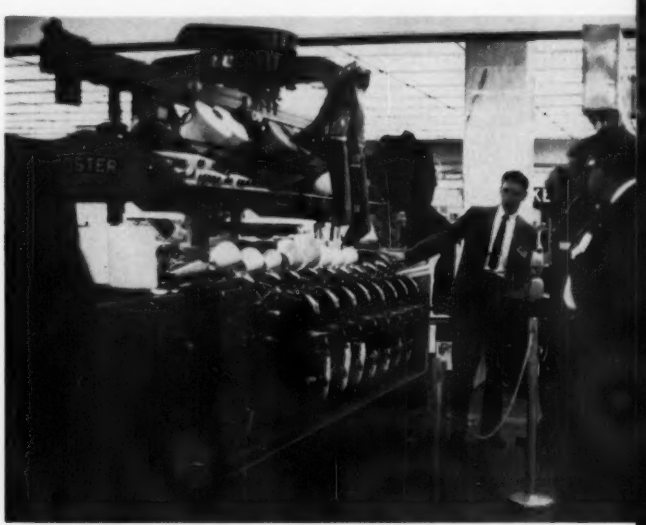
Foster Machine Co. used the exhibition to introduce for the first time its new Model 506 winder. Sales yarn winding and the making of a quality package for knitting were stressed at the show. Foster has designed its new winder with the idea in mind that there are pitfalls in over-mechanized sales yarn winding. Believing that fully automatic knot tying is impractical for sales yarn winding because of certain malfunctions that might take place, Foster pointed out that its Model 506 can solve the problem of winding high-grade knitting yarns on steep taper cones at reduced costs without compromising quality. The new winder has tailored its manual operation to fit the operator, simplify her control over her motions and encourage higher production. The winder has electronic tension, an improved slub-catcher, stop motion and other beneficial attachments.

JET DYEING MACHINE—Gaston County's new machine was studied closely by show visitors

Paul H. Farmer, sales manager for Foster, said that mill tests on the Model 506 are showing a 50% increase in operator productivity as compared with regular manual winders.

Farmer also made known that Foster has been named sales agent for the line of tension indicators and tension meters made by Tensitron Inc., Harvard, Mass. One of the new instruments is a portable electronic tension recorder which can measure tension uniformity on any piece of running equipment. A visual graph is traced on a strip of paper. Adjustments in tension control can then be made if needed.

The concluding part of this report on the Knitting Arts Exhibition will be published in our July issue.



QUALITY PACKAGE—Foster's Model 506 Winder is intended for high-speed winding of top quality yarns such as are used in the knitting trade

BEEBE RIVER, N.H., BOBBIN PLANT

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An MTM comprehensive report **PART ONE**

SUPPORT STOCKINGS

With special attention to the new all-nylon types, this broad survey covers all types of therapeutic hosiery for women and men

By George A. Urlaub,
KNITTING INDUSTRY CONSULTANT

THE RELIEF OF "TIRED LEGS" looms as a cause promising the American Hosiery industry new opportunities for profits. Currently a broad advertising and promotional program by the industry is educating American women in a new health concept: the importance of wearing non-rubber all nylon "support stockings" to reduce the fatigue and bad health effects of long periods of standing. The new health message is being beamed with special sharpness to housewives, and saleswomen, as well as other women workers whose duties require long periods of being on their feet. Men, too, who must do a great deal of standing in their work, are being told that special all-nylon support socks can help them overcome the deleterious effects on their well-being of "tired legs."

The support stocking is the present day version of the older "rubber elastic stocking". By way of definition we may say that a support stocking is a therapeutic stocking made without use of rubber yarns for its compression factors. This support stocking has found its way into the American market and its volume is reported by some to be as much as 5% of the hosiery volume of many good store outlets. It is sold under several trade marks, including those of industry leaders, and also under other descriptive names by private brands and unbranded houses.

Full fashion lines featuring these new all-nylon stockings include the following brands: Supp Hose by Holeproof, Kayser, Mojud, Phoenix and Schiaparelli; Rolane; Burlington with Ballet, Burlington and Cameo; Wayne Knit Support; Archer Stand-ins; Claussner and McCallum with Comfo-hose; "Lift" in Gotham Goldstripe, Hummingbird and Larkwood; Hudson with Hudson, Queen Charlotte and Oakhurst; Manchester's Ironwear and NuMaid; Triumph in regular and outsizes; Vision's Fatigueless; the AMC stores with Felice, Marclay Health Hose, Park Avenue, LegAide, and others. These ladies' full length support stockings, in both full fashioned and circular-knit constructions are in the market at retail prices ranging from $2.95 a pair.

Circular machine technical difficulties have not yet been overcome by all mills so as to enable them to produce satisfactory support constructions. Chadbourn-Gotham has just announced their "Lift" seamless number in Larkwood, Hummingbird and Gotham Goldstripe brands, made in eight sizes to sell at $5.85 for two pairs with a 120-day guarantee.

Hanes started shipping its seamless construction at the end of March. This is made under a Supp-Hose license and retails for $4.95. Burlington's seamless number has been in the market for some time and also retails at $4.95, while the Ironwear and Numaid numbers have been in the market for almost a year and these sell for $2.99 and $2.95 respectively. Diamond's "Fruit of the Loom" brand only recently came into the market and sells for $2.99 a pair.

Hudson report that their seamless number is still in the experimental stage, but we have learned that it is currently being wear tested by two large buying groups. Adams-Millis, who was recently reported as being ready with theirs, confirmed to the author that they have not yet completed the necessary mechanical and other work so as to have the stocking ready for immediate market offering.

Men's support socks, which have found their way into the market include "Supp-Hose" by Esquire, Holeproof and Rolane; "Activ-8" by Burlington; and Interwoven's Support Socks. It is expected that several more mills will announce their support styles of full-fashioned and seamless, ladies' and men's, in time for fall deliveries.

Elastic, part elastic support, and surgical stocking lines include the following names: Ace; Bauer & Black; Johnson & Johnson; Kendrick; Holloc; Horn & Bro.; Futuro; Stortz, and others. A large number of the surgical elastic stocking mills make their goods only on a special order basis for surgical appliance houses, hospital and clinical users. One large nylon hosiery mill makes a separate line of rubber-elastic stockings for wholesale drug outlets.

Of all the trademarks for non-rubber support stockings, "Supp-Hose" has been promoted most energetically and is the best known to the consumer. In fact, many women shoppers assume that this is the generic name for a kind of stocking rather than a proprietary trademark. Its owners no doubt will soon take steps to protect it so it does not become a generic name.

How Are Support Stockings Made?

The basic engineering factors involved are the following:

1. A knitted fabric, by virtue of the "S" formations of its loops, is elastic in that it gives or stretches when the loops are distended. (This is the reason for extensive use of knitted fabrics in apparel where body conformity or comfort is desired with a minimum of goring or contouring of the component parts in the garment.)
2. A knitted fabric, unless specifically made otherwise, will stretch in both directions; but by doing so

(Continued on page 42)

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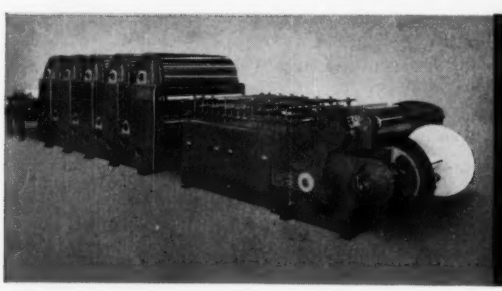
Very truly yours

LOUISVILLE TEXTILES, INC.

Harry Geisberg
Superintendent

HG:mct
CC: Mr. Spradlin



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THE TEXTILE DISTRIBUTORS INSTITUTE, INC.

NEWS AND COMMENT

New Wage and Hour Law

The impact on textile distributors of the new federal legislation increasing the minimum wage was analyzed in a recent bulletin, No. 2292, issued to members of the Textile Distributors Institute. As a service to the textile industry, the TDI has made available the text of the bulletin which follows:

"As you undoubtedly know, Congress has passed and the President has signed a Bill which changes the present hourly minimums for presently covered employees and also extends the provisions of the Fair Labor Standards Act (Minimum Wage Bill) to several million employees who were not covered in the past.

"With respect to employees now covered under the Minimum Wage Law, the hourly minimum wage is changed from the present $1.00 hourly minimum to $1.15 per hour effective September 3, 1961. This $1.15 minimum will remain in effect for two years, that is, until September 3, 1963, at which time the minimum automatically will become $1.25 per hour. The overtime pay provisions for presently covered employees will continue, that is, effective September 3, 1961, overtime will be paid at the rate of time and one-half per hour for work performed after a 40 hour week.

"With respect to newly covered employees, the hourly minimum becomes $1.00, without overtime provisions, effective September 3, 1961, and will continue for a three year period. Beginning September 3, 1964, the minimum for newly covered employees goes to $1.15 an hour, and one year thereafter, that is, September 3, 1965, it goes to $1.25 per hour.

"The overtime provisions for newly covered employees goes into effect on September 3, 1963. From September 3, 1963 to September 3, 1964, these newly covered employees will receive overtime for work performed after a 44 hour week; from September 3, 1964 to September 3, 1965, these newly covered employees will receive overtime for work performed beyond a 42 hour week; and commencing September 3, 1965, overtime will be paid after 40 hours of work.

"Newly covered employees, for the most part, are workers for retail enterprises doing a gross business of $1,000,000, or more, and whose annual purchase of goods for resale in an amount of $250,000 crosses the state line, that is, are in inter-state commerce. Newly covered employees also include workers in retail service establishments which meet the $1,000,000 gross sales requirement, etc.

"There is one change in the law which applies to employers whose employees were previously covered and to those whose employees are now covered for the first time. In the past, the Government (U. S. Labor Department) could not sue an employer who violated the law by paying under the minimum scale without the specific consent of the worker involved. Under the new law, the Labor Department can sue an employer for a covered worker's unpaid minimum wages without that worker's consent.

Ruling on Pima Label

In connection with the use of the terms "pima" and "pima cotton" on textile labels under the requirements of the Textile Fiber Products Identification Act, the Textile Distributors Institute recently issued the following bulletin, No. 2290:

"You will recall that in our Bulletin 2218 covering several interpretations under the Textile Fiber Products Identification Act, we gave the following instructions for fabrics containing pima cotton in Item #10:

> 'The Federal Trade Commission has taken the position (a) that "pima" or "pima cotton" descriptions should not be used in advertising or labeling unless the subject product is made wholly or partially of pima cotton and (b) if the product is made partly of pima cotton and partly of other cottons, the product may be labeled "100% cotton" or "100% cotton broadcloth" or, for example, "65% combed cotton, 35% pima cotton" (if these are the actual percentages of fiber by weight).'

"In view of numerous inquiries on the USE of the words "pima" and "pima cotton" the F.T.C. has issued this official statement on labeling and advertising requirements for the words.

> 'In advertising, the terms "pima" or "pima cotton" should not be used to describe any product or cotton portion thereof not composed wholly of pima cotton (pima barbadense). If the product or cotton portion thereof contains cotton fibers other than those represented as pima, then such fact must be disclosed and the different types of cotton fibers listed according to their predominance by weight, for example: a product or specified portion thereof composed of a blend of upland cotton and pima cotton with the upland variety predominating should be described as "upland and pima cotton" and the product should not be represented simply as a pima product or a pima blend product. The latter descriptions would be wrong in that they imply that the entire product or cotton portion thereof is made wholly of pima cotton or that the product contains more pima cotton than is actually the fact.
>
> 'In labeling of a textile fiber product subject to the labeling act, if the pima portion of such product is represented, then the amount of pima cotton appearing in the product must be disclosed by percentages, as for example: "90 per cent upland cotton, 10 per cent pima cotton.'

Golf Tournament Booked Solid

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(Continued on page 65)

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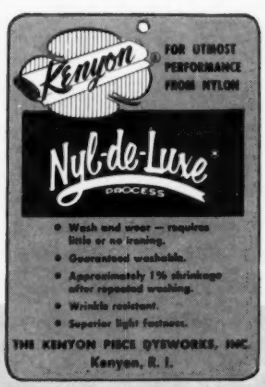


A Kenyon tag signifies a superior fabric

Support Stockings

(Continued from page 38)

the yarn, which is taken up to permit distention one way, is "robbed" from its neighboring loops the other way. Thus, lengthwise pull of a weft knitted stocking fabric causes it to narrow and become tighter fitting, or leg-hugging.

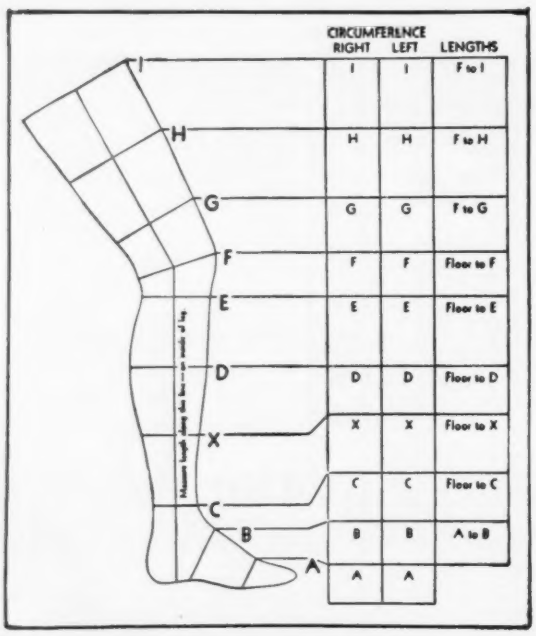
3. When we augment knitted fabric stretchability with the use of elastic yarns of one type or another, the fabric in turn stretches more or less in soft or firm relation as elasticity is present in the yarns themselves. The mechanical action of elasticity or constriction depends upon the forces exerted by the yarns used and the fabric dimensions of the article.

4. When high-twisted yarns of multi or monofilament nylon which have been heat-set to produce contractive properties are combined in a stocking fabric having less than normal width dimensions, the result is the extra compression forces required in the new non-rubber, support hosiery.

At this point in our discussion of the new all-nylon support stockings it might be well, for understanding of our subject, to consider for a moment the previous history of therapeutic stockings. These stockings, sometimes called surgical stockings, have long been made with rubber or rubber-core yarns providing the compressibility. They are made in the following styles: women's full length, above-the-knee stockings and men's over-the-calf socks, both with full heel and toe; with full heel and no toe; and with no heel and no toe. Women's styles are made in three weights: for dress wear, for casual wear, and for home wear. These are made also in extra width leg, in longer leg length and with extra wide (outsize) tops.

The women's home wear weight uses cotton covered rubber, while the other two weights are made exclusively with nylon covered yarns and of different "gauge" rubber sizes. Men's styles, however, are made in full weight fabric constructions from heavy yarns, with one-way and with two-way stretch factors. The rubber yarns are knitted in, laid in with other yarns, or both, depending upon the desired compression or stretch.

In the case of the surgical stockings it is important that a series of accurate measurements be made of the wearer's leg. (Figure 1) These are then translated by the maker into a stocking construction having the proper fit and compression as specified by the physician. Thus the stocking becomes a mechanical therapeutic mechanism to assist in the treatment of the wearer's vein trouble.



On the other hand, the new all-nylon support stockings carry over from the dress-wear hosiery industry, rather than from the elastic stocking industry. However, the elastic stocking knitters have been making these therapeutic stockings for over a century and it would be well for the hosiery industry to heed their experience when it designs a stocking to serve a similar purpose.

All of the all-nylon support hose we know of now on the market are modified constructions of the full-length, full-welt, regular leg-foot, single-unit, loopless-toe type of stocking construction. Some mills making them still have a long way to go with their construction modifications to insure consumer satisfaction and repeat business.

Good Fit Important

The all-nylon support stockings can be considered similar to, and an extension of, stretch-type constructions. However, the support stockings use firmer and less elastic heavy denier nylon filament instead of multi-filament yarns. Mills and buyers, too, must see here a stocking type which leaves no room for compromise with average leg-fit constructions.

The essential factors are the use of highly twisted, thermoset, torque-type monofilament nylon yarn, usually in multiples of 15, 20, and sometimes 30 denier size, and reduced proportions of width to insure compression in the leg fit of the wearer. Particularly noticeable will be the additional flare and calf narrowings to reduce fabric widths in those areas for the extra snug fit, necessary throughout the leg and foot.

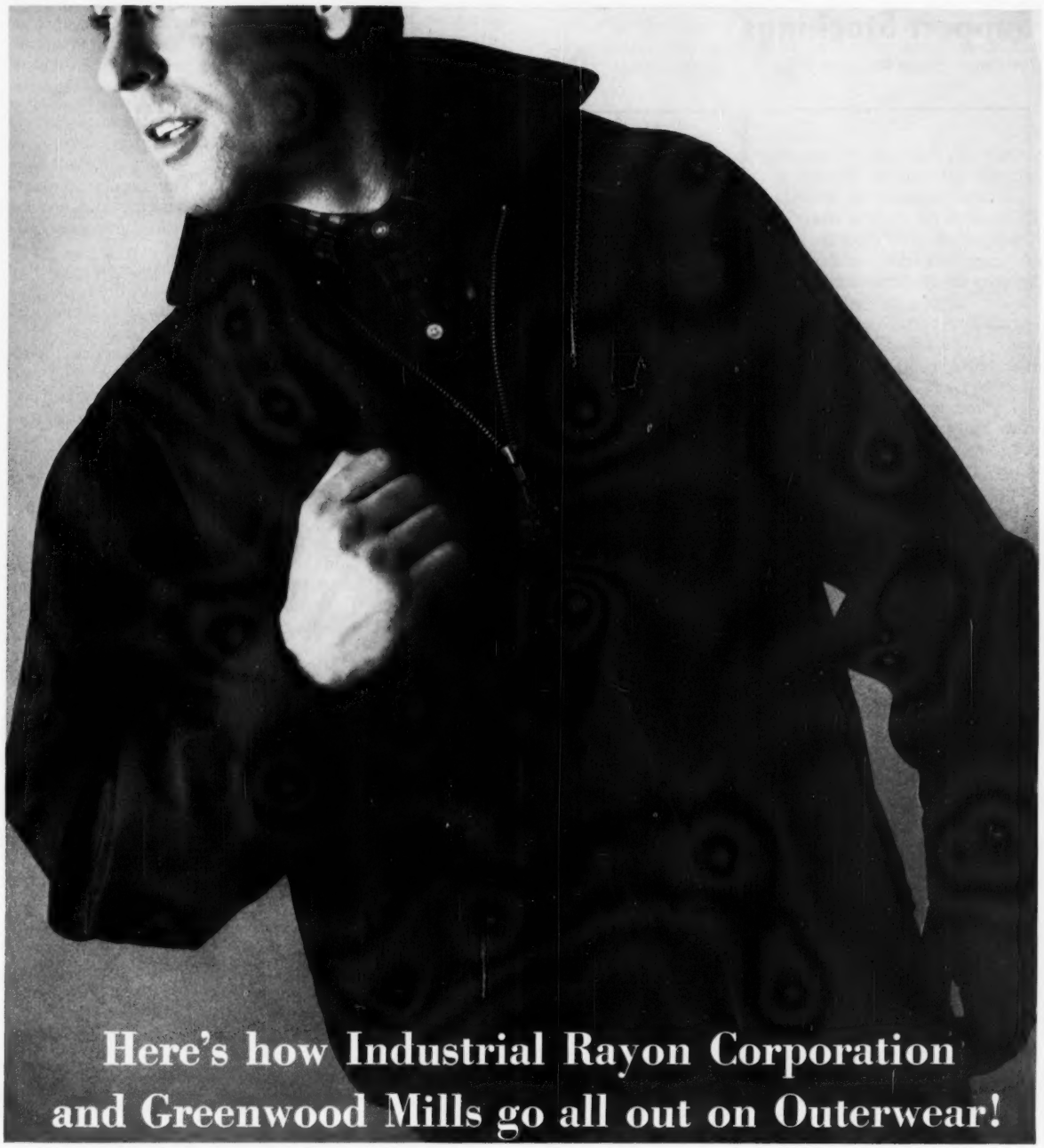
It is well-known that normal widthwise elasticity is chiefly effected by the fabric construction of the stocking, i.e. fewer needles, more filled-up loops and the lesser amount of yarn to be distented sideways. When the highly twisted torque yarn factor is added by the almost glass hard nylon filaments, non-elasticity of the fabric becomes compression which is necessary in support stockings.

Ease of fit above the knee is important; but not all support hose have two-way stretch tops. One line even has a strain-absorbing band in the afterwelt for better top fit. A number of samples inspected have torque yarn welts, with loose-course effects therein. But we believe not all of them will prove satisfactory to wearers needing more thigh fit than is found in smaller foot sizes. Loose courses are every four courses or so and some go through the shadow welt. Some welts have one or more picot run-stops, singly or in pairs, while others do not. Some branded line welts are made of regular stretch yarns of the Helanca, Banlon, Fluflon types.

The matter of heels should be looked into thoroughly; and in this new stocking type we strongly recommend the best possible heel fit. The almost universally used straight-line leg-foot blank of the single-unit knitting, with its absence of any semblance of the required right-angle foot conformity, is now further complicated by the absence of needles, yarn loops and fabric to fit the important "Y" heel instep

(Continued on page 44)

FIGURE 1—This drawing illustrates measurements used to make surgical stockings fit the individual wearer's requirements. (Reproduced with permission of James R. Kendrick Co.)



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Jacket shown: Zip-front style, with Silicone water-repellent finish, self collar, corded pockets, double-yoke shoulder. Sizes: 36-38 Oyster, Clay, Sage Green, Olympic Blue, and Navy. $9.95 Retail. Also in Boy's sizes 6 to 12, at $6.98 retail; and Boy's sizes 14 to 20, at $7.98 retail.

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Support Stockings

(Continued from page 42)

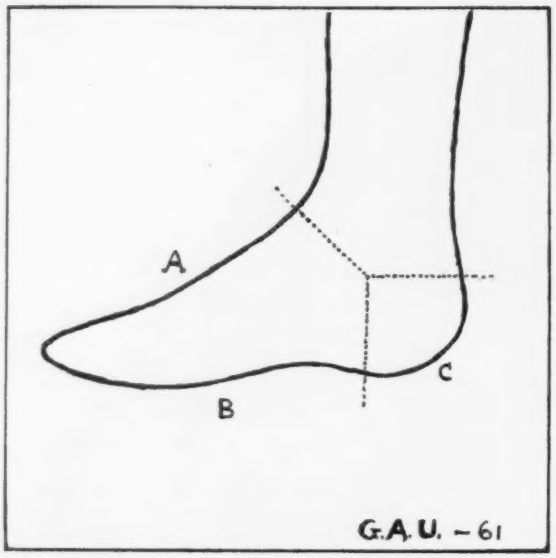


FIGURE 2—This drawing shows the heel and instep area. A is the instep area; B is the underfoot and C is the heel pocket

dimension (Figure 2). Support stocking wearers are not all toe-dancers or high "spike-heel" shoe wearers, and therefore require sufficient angular heel fabric in the stocking. The narrowed-out heel will provide better heel fit than the back-racked round-heel mostly found, and the "Y" double-gore heel is better than the regular seamless heel gore.

In the toe, some lines have a stretch yarn toe, while others run torque-yarn to the press-off . Either will do provided the foot fits the sizes intended, by actual foot trial and not just stretched against the inches on a rule. Running down to the 4-needle loopless tip also requires that the toe narrowing will provide sufficient fabric from the firm yarn and the needles left at the toe start. We cannot yet say with certainty if this torque yarn has the residual and progressive shrinkage factor that we have found in some of our past experiments with one-size hose and other knitted fabrics made from the usual stretch yarns. We, therefore, suggest that adequate wear tests be made of feet and welts before the stocking is packed and ready for the market and consumer.

The past complaints of hot feet in nylons, which led to cotton and silk soles in some, is present again with the heavyweight fabric of support stockings. Burlington now makes theirs with "comfort cushion soles." Triumph has "soft absorbent soles", both with cotton splicing. Wayne Knit, on the other hand, uses their "V-F", ventilated foot, construction, which consists of picot-lace effect rectangles placed alongside the seam in the sole, two in front of the heel gusset and two behind the toe.

Foot construction in full fashioned include small French and regular high spliced heels, and cradle-foot reinforcements, mostly with nylon. Seamless numbers have a foot similar to bare-leg nylons, i.e. heel and toe gores only without high heel and underfoot splicings. This is due to the fuzzy ends which result when splicing yarns are clipped where used in circular hose made on this particular type of machine.

Men's Socks

These are made in full over-the-calf length. Supp-Hose by Esquire and Holeproof, Support Socks by Interwoven and "Activ-8" by Burlington have been in the market for two years or more and already have fairly wide distribution, in the regular department stores, men's clothing departments and chains, haberdashers and also drug and athletic goods outlets.

The Supp-Hose sock retails for $4.95 a pair, packed 1/12th dozens, in quality put-up. It is made in five sizes: small, medium regular, medium tall, large, and large tall. It is made on a 200 needle Komet type "links" machine, as half-hose string work, from heavy denier, high-torque, all-nylon yarns. The cuff is a 1½ inch wide woven band which is "merrowed" on. Its stretch yarn warp, combined with six paired warp bands of uncovered rubber strands, forms rubber faced puckers on the inside which supply the tension to prevent cuff slippage when worn. There is no rubber in the body fabric.

The basis of men's Supp-Hose construction, (U.S. patent 2,739,467 Stern, May 27, 1956) is the alternating 2 and 2 bands of plain-knit, purl-knit in the front half of the sock to the toe, and the alternating 6 and 3 (derby) rib back half, down to the heel. This is shown in the photograph, Figure 3. The socks are also treated with the "Sanitized" patented bacteriostatic finish "for Hygienic freshness."

Interwoven men's support socks are different from the Supp-Hose socks in that the entire leg fabric in-

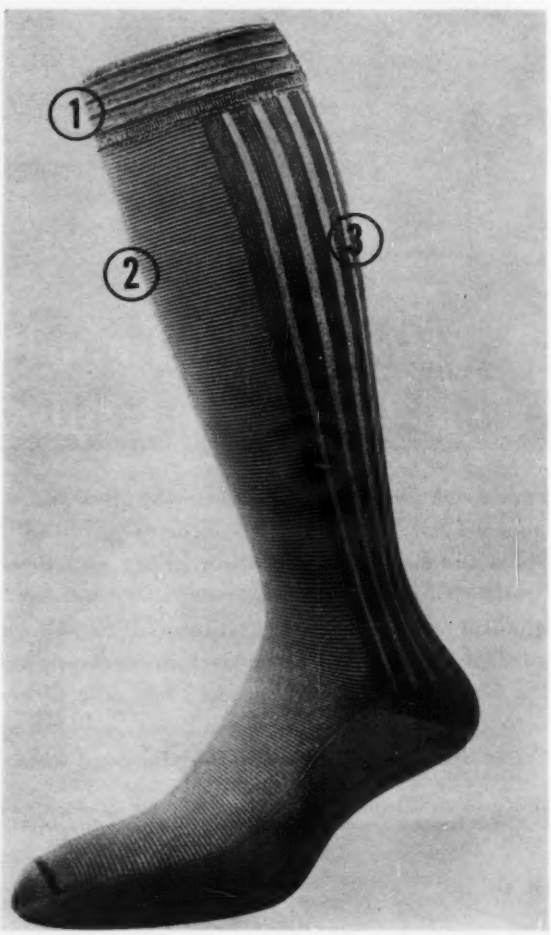


FIGURE 3—Men's "Supp-hose" showing 1, rubber yarn woven cuff; 2, purl-knit front; 3, derby-rib back. Rubber yarn is used only in cuff.

cludes Lastex rubber yarn in alternating courses, along with stretch-type nylon yarns. This method of knitting, done on a 200-needle Komet type links-machine, produces a fabric for which the maker claims greater compression, and, therefore, more therapeutic benefit than from a sock knitted entirely of one of the stretch type yarns. The selvaged cuff top is knitted automatically with the sock length. Retail price is $1.95 per pair.

Burlington's men support sock, "Activ-8", is also made on a two-feed, 200 needle Komet type half hose machine. Here stretch type nylon yarn alternates plain and with a laid-in covered rubber yarn throughout the leg for therapeutic compression not quite that of the man's heavy rubber sock. This like Interwoven's number, also sells for $1.95 a pair. This sock is shown in Figure 4.

It is well to emphasize here that support stockings and socks in addition to being made to the highest possible manufacturing standards should also be packed in the best possible consumer appeal packing. Boxing is mostly in 1/12th packing. In addition to this box, and insert, this hosiery should also carry an instruction-for-wear-and-care folder, together with a size of leg and foot dimensions for the respective marked constructions to insure maximum consumer satisfaction from the hose and to induce repeat sales thereby.

Many first time buyers, who have responded to the advertising propaganda and who may not have been actually in need of an elastic stocking, have found them to be comfortable to wear and good hosiery value at the higher price. Many business men have also found the long sock in better taste than the short ankle sock, and to be more comfortable all around.

FIGURE 4—Burlington's "Active-8" men's support sock, shown at left, is not an all-nylon construction. It has covered rubber yarn in alternate courses in the leg

Yarns Used

Formerly the compressive property of elastic hosiery was the result of the use of natural rubber, either as an uncovered strand, or covered with cotton or silk. These strands were laid-in or knitted in, depending upon the degree of compression required or the machine used to produce the stocking. As technology advanced, finer and still finer rubber strands were produced, and improvement in the art of rubber-covering and knitting rubber permitted better yarns and controlled stretch factors.

To get the results ordered by physicians, only rubber yarns gave the surgical stocking its required elasticity. This technique has carried over until recent years, when finer covered rubber yarns were tried out to get the esthetic results demanded for sheer hosiery. The size of yarn used has direct result in compression. Consequently, finer rubber yarns lose much of their therapeutic value. Most recently the elastic stocking industry has combined their finer rubber yarns with the hosiery industry's stretch yarns to make its less-than-surgical-requirement sheer elastic stockings.

Nylon yarn making techniques have advanced greatly in the past decade. As a result, the fiber producers are giving us more uniform monofilaments of 15 and heavier deniers. Application by the throwsters of some old and some new techniques also produces stabilized high-torque monofilament yarns necessary for support hose.

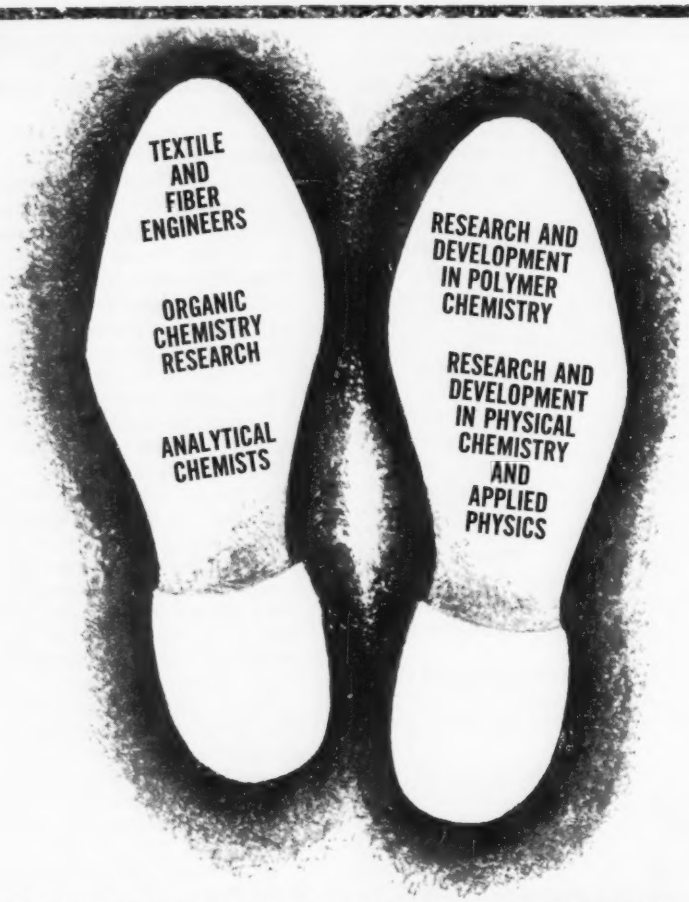
In women's all-nylon support stockings the most commonly used yarn is 15-denier monofilament which is knitted as a multiple-end yarn per feed, (nonplied in patent 2,841,971—the Supp-Hose). This monofilament has been hard twisted in one direction, then heat-set and reverse twisted in the other direction, to allow a latent twist torque to remain in the filament without yarn coiling. This differs in monofils in that molecular changes remain in the filament cross section which exert restrictive torque when it is extended as yarn, as opposed to the heat-set kinks and coil effects which are present in the Helanca and similar process stretch yarns.

The established principle of knitting reverse-twisted yarns in alternating bands of S and Z twists into the fabric to overcome one-way twist skew and to give the fabric added elasticity resulting from twist-torque loops, is again used in this new stocking production.

In the less compressive fabric, as in the welt and toe, yarns of multi-filaments and lesser torque are used. For the leg fabric two, three, or four ends of monofilaments, in 15 and 20 denier mostly, or even 30 denier, for a total yarn size of 60 deniers, are generally used.

As noted above in the men's section and the patent section later in this report, heavier yarns of stretch and non-stretch types are also combined with rubber yarns to make semi-surgical and surgical hose.

The second installment of this report on support stockings will appear in our July issue.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Louis Malina

(Continued from page 22)

From this tough business apprenticeship and practical education in commerce on the sidewalks of New York, Louis Malina advanced by degrees until the year 1909 found him 23 years old and a bookkeeper in a cotton yarn house. From bookkeeping he moved on to selling and began to learn about yarns and fabrics. By the time he was 32 he had earned for himself a position as a star salesman for the old cotton yarn house of Rottenberg Sons Co. Going about the textile trade in his selling work, he often ran into a friendly, persuasive, enthusiastic yarn dealer named Samuel Salvage. In the course of many pleasant conversations while they both waited on the hard benches outside yarn buyer's offices, the two men

Guessed Right about Rayon

In 1912, Louis Malina felt he knew enough about yarn selling to set up his own firm as a converter, as they were called in those days, of rayon yarns. He had been smart enough to realize, from what his customers told him, that rayon was a textile fiber with an extremely promising future.

The big question however, was to get a regular supply of rayon to sell. This new manmade substitute for silk was in strong demand then and supplies were extremely tight. At this point, Malina remembered that his old acquaintance, Sam Salvage was in charge of sales for the Viscose Corp. of America, the firm set up in Marcus Hook, Pa. by Courtaulds of England. Malina stopped in to see Salvage and asked him if he could get an allotment of rayon. Salvage, remembering Malina as a respected old acquaintance of his yarn-peddling days, and having great respect for Malina's reputation, promised him a suprisingly generous monthly allotment. The delicate question of credit then came into the conversation. Salvage asked Malina how much capital his firm had. Malina named the amount—$7,500. Salvage then asked if a credit line of $15,000 would be acceptable.

Money in the Bank

Malina was, of course, overjoyed. He had not expected so liberal a credit line, which in fact was as good as money in the bank to him: the yarn he received he was able to sell, in those golden days, within 24 hours for immediate payment.

Thus it was that his reputation for business integrity earned for him a generous credit line with the chief supplier of rayon yarn. In time, the relationship thus begun with American Viscose Corp., as it later came to be called, grew into a close and permanent business connection.

The enduring and mutually beneficial relationship as well as the high mutual regard that exists to this day between Malina Co. and American Viscose was demonstrated in a moving way a few years ago. The officer and directors of the big yarn producer gave a surprise luncheon for Louis Malina at the Empire State Club on the 35th anniversary of their first business relationship. At the luncheon, a plaque was awarded to Louis Malina signed by Frank H. Reichel, chairman of the board, Gerald S. Tompkins, president, Harry Dalton, Henry H. Bitler and numerous other old-timers at American Viscose who have been associated for decades with its rayon business and with its profitable and unfaltering dealings with Louis Malina.

Malina's business as a seller of yarns led him directly into other aspects of yarn supplying. From the very beginning of his specialization in rayon, Malina was more than just a jobber: to help his customers, he operated as a yarn converter, maintaining coning and winding equipment so that his firm was able, not only to supply yarn quickly, but to deliver it in any of a variety of put-ups required by a spread of customers with diverse needs. Thus Malina has long been and is to this day a firm which has the equipment and know-how needed to wind and cone expertly in a variety of ways.

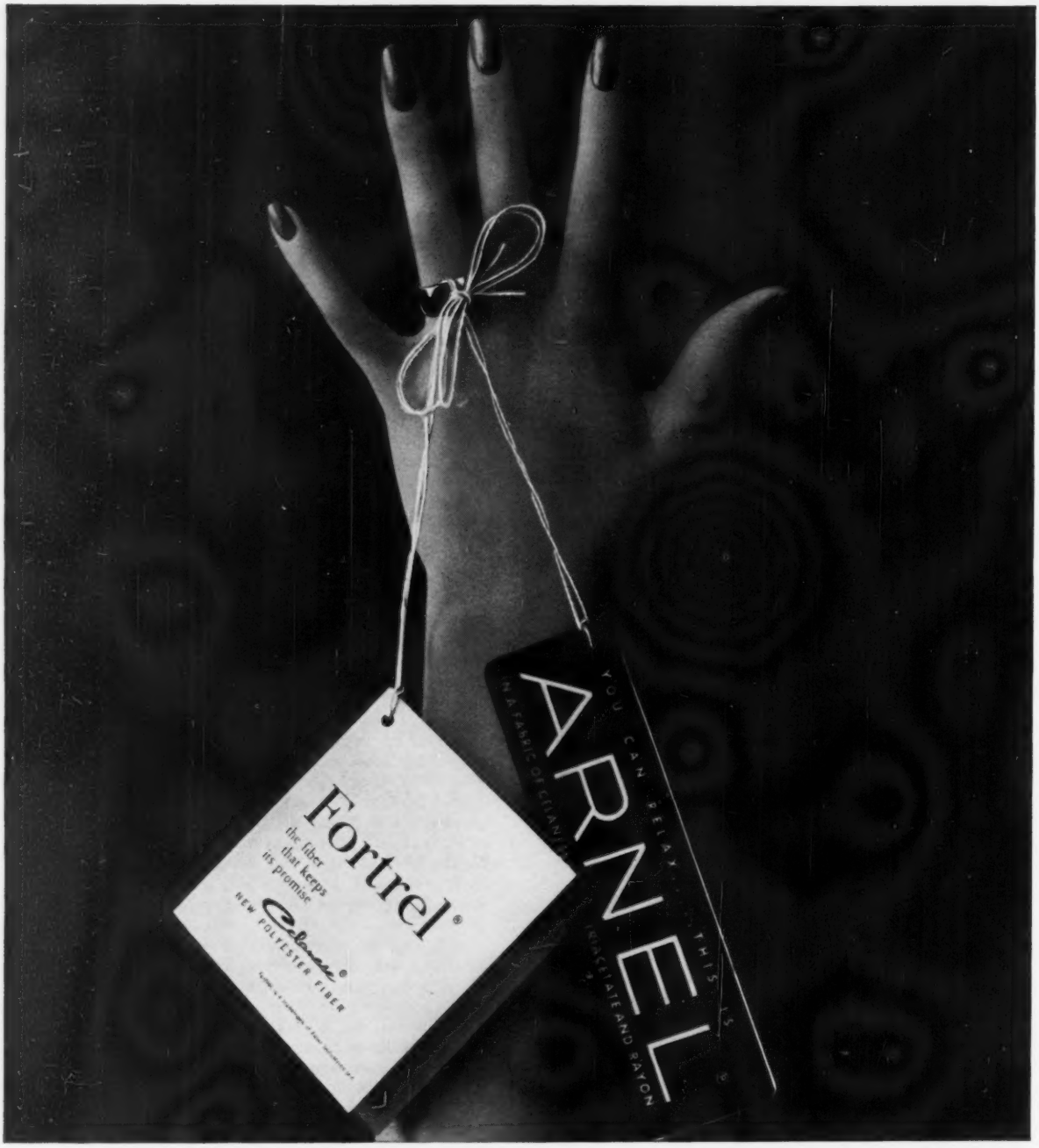
The need to give customers optimum service also led the Malina Co., early in its existence into the field of yarn dyeing. Today in this field it is one of the leaders through the operation of its companion firm, Atlantic Yarn Corp. As long ago as 1927, Malina realized that, to give customers the kind of finished yarns they needed with no question of the quality of the dyeing, he would have to be a dyer himself. And therefore Malina was a dyer even long before the acquisition of Atlantic Yarn Corp. As a dyer Louis Malina has always worked with unparalleled skill and unrivalled high standards both for customers who bought yarns from him and as a commission dyer.

Atlantic Rayon Set Up

For years, Malina maintained a big, superbly equipped dyehouse in the Port of New York Authority Building in the heart of Manhattan. In the beginning the work done by Malina was largely skein dyeing. However, realizing the economies of dyeing rayon in cake form without first winding it on skeins, Malina was the first dyer to develop a successful method for dyeing rayon cakes—these are the loose packages of yarn as they emerge from the pot spinning apparatus of the rayon producer.

In 1955, outgrowing its 80,000 square feet of floor space in the Port Authority Building, Malina acquired a big dyehouse and auxiliary winding plant in Providence. The plant was originally the Franklin Rayon Corp. which had been owned and controlled by Royal Little. In this plant, renamed Atlantic Yarn Corp., Malina has modernized again and again to provide the most efficient equipment for high quality dyeing of rayon, acetate and such newer fibers as nylon and the polyesters. Today, the Providence plant is equipped to handle 10 million pounds a year of yarn dyeing business.

Louis Malina, an old-fashioned businessman, has reason to be proud of his achievements as a yarn merchant and yarn dyer. Even though he has survived to do business in the great age of advertising and publicity, he still believes with unswerving conviction in the truth of the motto which has guided him in business all these years. He believes that the only sure road to success is reliability in business dealings coupled with hard work and the turning out of a product better than competitors can offer. He likes to point out that at one time, years ago, his kind of yarn selling and dyeing business had given rise to at least 40 competitors; within a few years, he says, they dwindled away until only very few remained. He regards this as demonstrated proof of his adopted motto: "If a man can preach a better sermon . . . build a better mousetrap . . . the world will make a beaten path to his door." At a time when many young men are impatient and looking desperately for quick and easy roads to success, it may be a refreshing and inspiring notion for all in business to reflect that Louis Malina may be right. ■



SHE KNOWS HOW TO HELP HER BETTER HALF LOOK HIS BEST

Make sure the tag says Arnel triacetate or Fortrel polyester! Shopping for herself and the children, she's learned that these tags are found only on fabrics which have met demanding quality-control standards. And she's learned through experience that these fibers keep clothes looking fresh as new with a bare minimum of care. So when she's buying clothes for her husband—or helping him buy them—she goes out of her way to find these dependable Celanese Fibers.

Arnel is soundly established in menswear—it's featured in many fine lines and backed by national advertising the year around. New Fortrel got off to a brilliant start this year—and plans are in the works for an all-out menswear campaign in '62. To capitalize on this acceptance, be sure to include fabrics with Arnel and Fortrel in *your* line! Celanese Fibers Company, 180 Madison Ave., N. Y. 16 (a division of Celanese Corporation of America).

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Celanese Contemporary Fibers

New uses of MANMADE FIBERS in APPAREL FABRICS

A review of recent innovations that spell out broadening profit possibilities for mills, converters, cutters

By Goody Solomon

IN THIS YEAR'S APPAREL, every fashion theme made possible during the past decade by the incessant creativity sparking manmade fibers is broadened and intensified. For every man, woman and child there are more colors, more textures, added features of practicality and comfort, increased elegance and greater variety of silhouettes and styles.

This expansion comprises two notable developments: (1) the full maturity of men's wear as a fashion field almost equal to the women's field in its variety of apparel; and (2) an increasing use of synthetics by makers of medium and higher priced garments.

New and improved fibers, yarns and fabrics are the mainstay of annual gains in manmade textiles and 1961 is one of the newsiest of recent years. Typical of these changes is the upsurge in fabric-foam laminates. Introduced about two years ago in a few knit garments, largely made to sell in lower price ranges, they are achieving tremendous popularity in woven as well as knit fabrics, in a broadening variety of weights and constructions, and in wider price ranges. The result of quilting, sewing or laminating urethane foam and cloth in a permanent bond, these fabrics provide warmth properties for light gauge materials, add wrinkle resistance, give a new plumpness to otherwise thin fabrics, and offer entirely new styling possibilities such as boxy effects using the good draping qualities of the lighter goods.

While the major uses of fabric-foam laminates at present are in knit jackets and other types of outerwear, their use in many other kinds of garments are currently shaping up. These developments foreshadow the complete style revolution stimulated by laminates which many textile people are now predicting.

A few months ago, Nopco Chemical Co. introduced a new form of polyester foam called Nopco Insulining for laminating to knit goods. It has a closer knit appearance, better drape and softer hand than earlier foams.

Reeves Brothers, manufacturers and heat laminators of Curon Foam, stress the advantages of foam-fabric laminates for lightweight travel wardrobes that protect against heat as well as cold by virtue of the foam's adaptability to any temperature. The company is promoting varied uses for foam-laminates

KODEL AND TOPEL fibers of Eastman and Courtaulds respectively were combined 55-45 in this fabric cut into a dress by Genevieve Originals

JERSEY ACRYLIC fabric laminated to polyurethane foam gives warmth with light weight plus becoming drape to this outercoat

such as swimsuits, sweaters, rainwear, bras, shoes and slippers, gloves, handbags, as well as ready-to-wear.

Five basic fibers, each with a color story, appear among foam-laminated coatings for fall-winter fashions by Princeton Knitting Mills. Laminated to Scott-foam, they include a felt type in acetate, rayon and nylon, Purr-Suede in all nylon, a steep effect twill in rayon, acetate and nylon, an 80/20 Orlon-wool jersey and mat jersey of acetate nylon.

Fall 1961 fashions for children feature foam-laminated knit jackets with matching pants and caps to be promoted for between season comfort.

The desirability of warmth without weight, one of the features which is making laminates so popular, accounts, too, for the continued success this year of pile fabrics and synthetic furs.

Dynel, Union Carbide's modacrylic, continues its importance in this market. Dynalure, a new fabric by Princeton Knitting Mills, is a curled pile knit of 100% Dynel facing on a cotton backing which simulates expensive shearling. The curled effect is achieved by heat processing. In addition to coating, it is used for linings of coats and jackets, and for boot and shoe trim, and will be seen in better sportswear lines for fall '61. A novel innovation for sportswear with this fabric is a laminated fabric of Dynalure/urethane foam and nylon suede, which sandwiches the foam between the outer fabric and inner lining. Said to be highly wear resistant and 100% washable, the fabric is also reported to tailor well. Princeton expects to increase Dynalure output by 2½ times.

New Fur Effects

Dynel appears in several blends in pile fabrics that achieve varied fur-like surfaces, such as fox, palomino and leopard. One called Alatia, a two-height pile fabric of Dynel and Verel, has a specially grooved surface that resembles mink. Developed by Alamac Knitting Mills and Lou Nierenberg Corp., its let-out look is achieved with an electronic technique that gives highs and lows to individual fibers in the fabric.

"Tipped" piles are another new effect achieved with Dynel. In these fabrics, simulated "guard hairs" create a two-height pile. Colors range from silver-gray to black, brown, green, gold and blue, with either silver tipping or black tipping. They are especially important in men's shawl-collared suburbans and car coats and are widely used in linings of hoods. In all-pile pullover parkas and blouses for men, Dynel blends in tipped effects are strong, some of these in sheared styles, others in longer haired shaggies.

New sophistication in solid colors is apparent in this year's pile coating market, following the trend of richer, softer, piles that give the impression of fur without actually imitating any particular animal skin. Shades such as Matisse Blue, Richelieu Red, Parma Violet and Bronzine are appearing in these coats.

Eastman Verel modacrylic fiber is significant in the knitted pile fabric field in two categories; for linings in 100% Verel pile, and in outer shell coating fabrics, where it adds the lustrous guard hair to the two-height pile fabrics.

Creslan in Pile Fabrics

A newcomer in the pile fabric field is Creslan, American Cyanamid's acrylic. It has been introduced in a number of fabrics. Outerwear pile fabrics of 100% Creslan face by Borg are made in an unlimited range of colors dyed to match or coordinate with other fabrics with which it is used. Sherpa and Sherpa-Touche, both of 100% Creslan, are made by Collins & Aikman with a shearling texture. The first has a lightweight woven backing for easy tailoring; the second provides a variety of hand and appearance in a dense, solid pile, with a subtle nubby look and cashmere-like softness. To guide the men's wear industry in styling outerwear of Creslan pile fabrics, Cyanamid's exhibit at the fall 1960 National Outerwear & Sportswear Association's annual suppliers' show displayed reversible jackets, storm coats, a reversible jump suit, a smoking jacket, car coats and ski clothes.

Du Pont Orlon is another important acrylic fiber in pile coatings and at Princeton a new type Orlon is used in Alaskan Jewel, a luxurious pile that presents a seal effect.

Chemstrand's solution-dyed fiber, Acrilan-Spectran, will be used in pile fabrics for shells, liners, trims, etc., following its initial use in men's socks.

Beyond their extensive use bonded with foam, knitted goods that look and wear like woven fabrics

are offered this year in almost every conceivable type of apparel. With new knitting machines, knitting techniques and yarns, plus the emergence of the foam laminates, the assortment of styles (including flared skirts), textures and colors that have become familiar in woven clothing of recent years is equalled in this year's knitted suits, dresses and ensembles, coats and jackets, shirts, sweaters and swimsuits.

Orlon in Knit Dresses

A woman can pack a travel bag with knitted garments that will take her through the day and night, Du Pont points out. The company's Orlon Cantrece acrylic yarn, for example, is used in three-piece ensembles that are described as light, smooth and supple, and crease resistant. The yarn, said to make textures similar to silk knits, is also used in a jacketed sheath dress, sometimes sleeveless, which doubles for day and evening wear; and in a one-piece scoop-neckline dress with a novelty stitch that presents a lacy look and makes the dress appropriate for cocktails and dinner. Du Pont's Orlon Sayelle is used for firm, full-bodied knits and surface effects, and Du Pont's Antron nylon yarn, recently seen in sweaters for the first time, is used in boucle fashions with a subtle shimmer.

Ordelaine, which means "wool of gold," is the name of a new, luxurious blend of 50% Orlon with 50% fine spun wool made by J. P. Stevens & Co. for this year's knitwear. According to Stevens, it resembles fine Zephyr wool, performs like synthetic fibers and is pill resistant.

Jersey of Orlon and wool, particularly in 80/20 blends, was the first commercial application, in the fall of 1960, of Du Pont's new fiber-sealed process for the production of livelier, fuller-bodied fabrics. The new jersey, offered by Alamac Knitting Mills, was tradenamed Thalmatte and was featured in garments by Paul Parnes, Mort Schrader, L'Aiglon, Junior Sophisticates, Robert Sloan, Mr. Gee, Amerique, and Devonbrook. Next application of the process is spring men's wear.

Du Pont has developed a new Orlon, designated Type 72, for blending with cotton in knits. It is used in an 80/20 combination, which, Du Pont says, "gives knit sport shirts new, cooler comfort and greater absorption of moisture."

The "Knitted Look" in Wovens

Knits are so popular that Ameritex has simulated knitted effects by printing on a base cloth which looks like a knitted fabric. Designs are in tapestry, hand-loomed wool patterns and floral stripes. One design has the look of hand-knitted tweed. This group, called Tricknit, follows the previous Playknit which Ameritex sold in depth to many types of markets.

Knitwear for men, women and children, for dress-up and casual wear, is the newest story for fall 1961 at The Dow Chemical Company's Textile Fibers Department. A wide variety of yarns and blends are in the works currently but the major promotional efforts will be concentrated on knits of Zefran with Rhovyl and with wool.

Zefran and Rhovyl worsted spun yarns by Masurel Mills, Inc. are aimed at the women's sweater and dress trades.

For men's and women's, as well as children's, apparel, Zefran and wool blends are available in varied weights and textures, depending on the end use involved. Deering Milliken is producing a 75/25 blend; a number of 50/50 blends with a slightly more wooly texture are available at Wm. Whitaker & Son and Paul Whitin; Fitchburg Spinning Mills has an 80/20 blend.

In addition, a variety of novelty yarns with Zefran and texturized nylon has been developed by Masurel Mills for the non-bulky look in dresses, yard goods and knitted outerwear, and Wm. Whitaker & Son combines Zefran and texturized nylon with bulkier, more textured effects.

Zefran in knits this year also includes extension of its use in blends with linen; and a 50/50 blend with Corval is made for men's shirts and sweaters.

Two-dimensional knits were among the new experimental fabrics of Creslan shown by American Cyanamid in a special presentation to the trade and press last month. The fashions were created by Maurice Levin. One was a bulky knit town coat with a stand-away collar in a textured two-dimensional knit of Creslan and mohair. It had a soft, airy look, but was said to be extremely warm, though light in weight. A "see-thru" low-waisted chemise tunic was styled in a heavy knit lace of Creslan and wool and covered a closely knitted sheath from the same yarn. Men's fashions ranged from softly textured shirts to bulky outdoor sweaters. Added brightness was given to one pepper-and-salt tweed pullover by the combination of a rough-textured yarn and a luminescent roving yarn, both of 100% Creslan.

BEMBERG AND COTTON were mixed to make this fabric with a silk-like sheen cut into a dress

Courtaulds' exhibition at the April Knitting Arts Exhibition stressed the increased importance in knits of its Corval, cross-linked rayon, and Coloray fibers. Shown were silken, airy fabrics, many in frosted pastels such as apricot, champagne gold and mist blue. According to Courtaulds, Corval's blending with acrylics, polyesters and triacetate increases the range of true colors in comparatively less expensive knit fabrics with softer, more comfortable hand. Double knits are made in either 100% Coloray, 100% Corval or a blend of Corval and Kodel. Corval and Coloray are also used in knits laminated to polyurethane foam such as a 50/50 blend of Corval and Acrilan laminated to ScottFoam made by Allen Knitting Mills in three styles: plain jersey, crepe stitch and a waffle-type knot.

Corval in Knits

An intimate blend of Corval and Arnel by Heller, with a soft, mohair-like hand attributed to the rayon yarn, provides luxury qualities in middle price ranges. The fabric's built-in anti-shrink factor is a popularity factor, according to Heller.

A variety of Corval blends with acrylics, polyesters and triacetate are in men's shirts by Van Heusen, Jayson, Tom Sawyer, Bud Berma and Brentwood.

Courtaulds reports Coloray is proving especially important in jersey blends with cotton. In variations from 65% Coloray with 35% cotton to 25/75 blends, several companies, which introduced them for fall 1960, found them so successful they are continuing to feature them. Color advantages are outstanding now that the solution-dyed fiber is available in several colors instead of the black for heathering to which jersey makers were limited previously. A single yarn may contain a number of shades of Coloray for interesting design effects.

Gold, oyster, lilac and pumpkin have been added to the Coloray line. Seco Mills, Inc., which is making Coloray/cotton knits for men's and boy's wear, is featuring strong coordination with fancies—knits, stripes, checks, argyles—color-coordinated with heathers and solids in both plain and textured knits.

Coloray is reported to be popular with jersey manufacturers because it allows mills to achieve wide color variations without extensive dyeing operations. Colors may be matched exactly by mixing fibers within the yarn.

Coloray yarns, in addition to their importance in the cotton knit picture, are being used in half-hose blended with Acrilan. Corval/Orlon half hose is available too.

Kodel and Wool

A successful new knit blend of 35% Eastman Kodel and 65% wool for men's sweaters is reported to have excellent stability even after repeated machine washings. Brentwood has developed a new line of styles and color combinations in this new blend.

A new matte jersey fabric called "Purr 'L" by Belding-Corticelli is knitted of 90% Estron acetate and 10% nylon. It is being introduced for fall in an extensive range of printed patterns and colors.

Chemstrand Cadon nylon is widely used in women's apparel, particularly sweaters. The fiber has a multi-lobal shape in cross section, differing from the usual roundness of other nylon fibers. This shape causes light to be reflected outward, imparting a fine luster and silk-like appearance. Chemstrand reports that end uses will include sport shirts, jackets, rain coats and casual wear.

This year is one of the largest in some time for knit swimsuits and Eastman reports that Chromspun acetate, combined with acrylic and rubber, is a top style and volume contender. New techniques, such as knitted to shape swimsuits, done in one operation by Beaunit, results in fabrics knitted to size and sold by the dozen instead of by the yard.

Color is so big a part of modern fashions that two mills have introduced house-wide color coordination of wovens, knits, prints and plains, blends and synthetics. They are Cone Mills and M. Lowenstein & Sons.

Improved Velvets

Indian Head Mills, Inc. announced that Martini velvet by Martin Fabrics and Skinner Deep Lustre Satins by Wm. Skinner & Sons are to be merchandised to the cutting and retail trades in 10 coordinated colors. The velvet is a 70/30 cotton-rayon blend that is crush resistant and water repellent. The satin is 100% acetate, water spot-resistant and can be dry cleaned or hand laundered. They are to be used for dresses, separates and sportswear.

Important new colors from the Paris and Italian spring collections are spotlighted in a color card prepared by the designer service of American Cyanamid's Fibers Division. To supplement the card, the service has on display fabrics selected by its designer Maurice Levin in principal European countries to illustrate new trends in fabrics. The designer service is assisting mills wishing to integrate the look of these fabrics into line planning for spring and fall 1962.

Exotic colors are featured in Bates' Fabrics piece goods promotion of its Spice Chest collection. It is the first time the company is using a thorough fashion theme to promote fabrics. The campaign is a cooperative venture with McCall Pattern Co. The basic line is of three color combinations and approximately 100 additional combinations are provided.

FORTREL POLYESTER fiber made by Celanese combined with worsted is made into this leisure suit with a new kimono-cut buttonless jacket

Color and sparkle often go hand-in-hand and Metlon Corp. reports this year as tending to be one of the biggest metallic seasons in some time. Not only has the European vogue for metallics in knit goods crossed the ocean, but also metallics are increasing in importance in jacquard types, box loomed effects and other fabrics.

Lurex, Dow's metallic yarn, will play an important role in fall knitwear plans, reports Dow, noting the yarn's expanded color story. The 50C yarn, designed especially for knits, was originally brought out in gold and silver. Now it is made in black, red and blue.

Stretch Fabric Trends

Versatility of women's ready-to-wear fashions, for the first time in several years, extends significantly to silhouette, line and drape as well as color, surface texture and hand. In contrast to some of the boxy effects, controlled flare and similar loose effects, many achieved with fabric-foam laminates and knits, is the natural body line achieved with form-fitting stretch fabrics. The current volume markets for stretch goods are slacks, skiwear, swimwear and similar sport togs; intimate apparel such as girdles, bras and loungewear, and accessories such as gloves. The stretch in the fabrics used is provided lengthwise, crosswise, or both ways, by one of three yarns: specially processed nylon, elastomer yarns known as spandex, and rubber yarns.

Samplings of stretch fabrics for dresses, suits and evening wear appeared at several houses early this year and promotions of stretch fabrics in ready-to-wear ran in national magazines. Add to this the research and experimentation known to be in process almost everywhere and limitless possibilities for stretch garments present themselves. Among the samples in showrooms now are a crepe-like texture with metal in the filling; Tussah combined with nylon stretch yarn giving a rustic look; mohair in a bouclé-like texture with stretch yarns and jacquard weaves using nylon stretch yarns in the warps, combined with wool, worsted, Orlon, cotton or rayon. Also stretch pile, velveteen, silk, tapestry, among others, are shown.

Stretch lace of Du Pont nylon, a recent development of the Lace Art Co. of New York, has attracted strong interest in the intimate apparel trade and is expected to find acceptance in many other areas of women's wear, including swimwear, gloves and leotards.

Lace Laminate

Rubber Fabrics Corp. has introduced a new laminated stretch lace called Slimmer. It has a lace face and jersey reverse, both of stretch nylon yarns and a latex foam rubber layer is sandwiched between them. The fabric, which is offered to swimwear and girdle manufacturers, gives a two-color effect because the white latex shows through the lace. It is described as porous, quick drying, able to be washed repeatedly without losing elasticity or color, and comfortable by virtue of its two-way stretch which makes it conform to the body.

A smattering of spandex girdles and panties appeared on the consumer market a year ago; today supply can't keep up with demand. It has been reported that corset buyers attending the June market had spandex merchandise on top of their lists, intending to substitute it for traditional elastic types whenever possible. Its excellent control, near weightlessness and comfort, they feel, are a boon to women.

FUTURE FASHION?—This smart coat is made of a basket weave fabric of American Cyanamid's Creslan acrylic fiber wax-printed in the new "hot" colors

Spandex is proving extremely important in swimwear, where like intimate apparel, it offers good fit for almost every size or specialized figure requirements. Seventeen models in the 70-suit 1961 line of Rose Marie Reed are made of either Vyrene spandex of U.S. Rubber or Lycra spandex of Du Pont. Stretch trunks for men are also available. Jantzen makes a textured nylon stretch knitted model in a diamond pattern.

A new development in stretch goods is the specially processing of worsted fabrics to give them a fair degree of stretch. It was introduced recently by Timely Clothes, Inc. and will be appearing in men's suits. The process alters the molecular structure of wool so that the cloth yields when tension is applied through wear and then returns to its original shape when the tension is removed.

A new 70-denier Lycra support stocking appeared last month. It was developed by Littitz Knitting Co. and is marketed under the tradename Fashion Sheer, in a full-fashioned construction.

Home sewers will find a limited supply of stretch goods in stores and some paper patterns for making fall outfits from them.

To keep up with the growing demand for stretch yarns in woven goods, the throwing industry will have to expand, according to Joseph H. Hamilton, vice president of Madison Throwing Co. He spoke

ARNEL SHARKSKIN is the fabric in this swim suit designed for strenuous action in the water. Arnel is Celanese's triacetate fiber

last month at a meeting of the American Association for Textile Technology. Noting that the throwing industry has been behind on deliveries, he said:

"It seems conservative to estimate, based on all known facts today, that weaving in 1961 may consume 3 to 4.5 million pounds of textured or stretch yarn based on 2/70. Nineteen sixty-two should see this grow to 5 to 7 million pounds, and by 1963 the consumption for weaving should reach 8 to 10 million pounds."

Nonwovens Work Wonders

New silhouettes for women this year are helped by the nonwoven fabrics. Ten-year-old Pellon, for instance, facilitates creation of the new roundness at the woman's hipline and her widening shoulders. Keyback nonwoven interfacing by Chicopee Mills is another shapemaker and Chemstrand is promoting Chembond, an interliner of bonded Acrilan, for flared coats and suits, noting that by insulating as well as shaping, this fabric eliminates the need for extra interfacing.

Handmaidens of the new constructions like foam laminates, knits and stretch fabrics, are the manmade fibers and yarns whose variety and improvements are never-ending. One of the newest is Celanese's Fortrel polyester which was launched for spring 1961 selling in men's, women's and children's wear. Used principally in blends with cotton, rayon and Arnel triacetate, Fortrel is promoted as "the fiber that keeps its promise." Its promises include wrinkle resistance, crease retention, easy care. It appeared, for example, in a sheer print dress by Parade made of Renoir's voile of 65% Fortrel and 35% cotton. A men's leisure-wear ensemble of overshirt and walk shorts by Lewis Aronson, British designer, features a Fortrel/cotton blend in the shirt and a Fortrel/wool blend in the shorts. The shirt is broadly striped in London Lovat green, Castle grey and white.

The established polyesters continue to play an important role in 1961 apparel.

New Dacron-Cotton Textures

For women, a new spring fabric is a lightweight boucle woven of Du Pont Dacron, wool and nylon. New textures for the proven blend, Dacron/cotton, include a slubbed fabric similar to a duppioni weave, a shantung, a damask print, and yarn-dyed tattersalls. Galey & Lord reports "a strong feeling" for Dacron and cotton blends. One of the newest developments there is a ribbed Ottoman fabric of 50% Dacron and 50% cotton, being used in a variety of women's wear from beach outfits to evening clothes. Also by Galey & Lord is Thunderbird, a new rainwear fabric of 50/50 Dacron-cotton with Scotchgard rain and stain repellent finish. The same house is also offering its Tarpoon cloth with a laminated backing for fall garments for men, women and children. In addition, Channel Cloth, a 68% Topel and 32% cotton blend is going into women's and children's wear, following its previous use in men's bathrobes and shirtings.

Crepes are big in many women's fabrics this year. A new family of 100% Dacron crepes with a pebbly texture and the loft of a silk crepe de chine has wash and wear properties, according to Du Pont. Another use of Dacron polyester is the petti-blouse, an all-in-one petticoat and blouse made of a fabric called Doucelle woven by J. P. Stevens.

Wamsutta, this spring, introduced a blend of 55-45 Dacron-rayon designed for men's dress slacks and suits. The fabric, which has the Suttamatic Automatic wash-and-wear finish, comes in three weaves. At Wamsutta, too, for spring is a 50-50 Vycron and combed cotton poplin for men's dress slacks and jackets. It is called Exceller and also has the Suttamatic finish.

Beaunit's New Polyester

Vycron is the joint effort of Beaunit Mills and Goodyear Tire & Rubber Co. It appeared in women's wear for the first time in 1960 in staple broadcloth batiste, poplin and in lingerie fabrics. This year a 50-50 Vycron-cotton broadcloth was introduced for women's shirtdresses, children's wear and women's blouses. This blend is noted for its wash-and-wear performance.

To mark the first appearance of Vycron in women's suits, blends of Vycron with rayon are being made into women's suiting fabrics, which are expected on the market for spring 1962. For fall 1961, there is a new Vycron-Topel gabardine in a line of slacks for women and men by Moyer Bros.

Kodel, Eastman's polyester which was introduced two years ago in men's wear, debuts this year in fabric blends especially suitable for women's apparel. Dress weight fabrics in combinations of Kodel and Topel by Travis Fabrics and of Kodel and Avril by George Woods Sons are for transitional and fall lines. Genevieve Originals, makers of misses' dresses, is one of the manufacturers using these fabrics extensively. In the lingerie field, a new fabric blended of Kodel, cotton and nylon was introduced in the spring lines of Seamprufe, Kayser-Roth and Yolande. It offers stay fresh appearance and easy care performance.

A new knit blend of 35-65 Kodel and wool for

men's sweaters is reported to have excellent stability after repeated machine washings.

Kodel is the first polyester to be solution-dyed. Following the inception of solution-dyed Black Kodel, Eastman has introduced Kodel Navy and Kodel Brown. The company stresses the new color effects these fibers permit which were heretofore impractical in polyester fibers. It also notes that the deep penetration of solution-dyed Kodel colors makes them impervious to finishing processes such as the use of bleaching agents or chemical solvents that normally affect colors.

Avril's Advantages

A new apparel fiber to appear this spring in all markets was Arnel 60. The Celanese fiber, a high-strength variant of regular Arnel triacetate, is used in 100% constructions as well as blends in jerseys, sharkskins, broadcloths and other fabrics. Permanent pleating, easy care and lasting freshness are stressed in Celanese promotions of Arnel fabrics. Celanese will promote Arnel garments for back-to-school fashions with a campaign said to be the first of its kind and including a four-color spread in the August McCall's showing 12 back-to-school fashions of Arnel.

Rayon fibers and yarns continue to make news in the fashion world. American Viscose reports increasing use of Avron, modified high strength fiber that blends easily. It is used with manmades particularly because the Avron is comfortable to wear. Blends of Dacron and Avron have a rich, silky broadcloth hand and wash-and-wear qualities. Avron blended with Arnel triacetate can be permanently pleated and in a fine poplin is recommended for home sewing projects as well as for separates, where different weights are often rendered in tone-on-tone effects.

Avisco's Avril, the newest rayon fiber, is fast gaining favor for blouses and dress fabrics. The strongest rayon staple developed to date, Avril is said to have a stability equal to or better than cotton. Fabric-Elle, a new wash-and-wear fabric designed for women's budget priced dresses, is made of 65% Dacron and 35% Avril. It was created and produced by Pacific Mills, and was introduced in spring fashions by Mary Allison, Debbi Day, Sherwood Fashions, Smoler Bros., Wentworth Manufacturing.

Debut of Arnel 60

In blends with Dacron, Avril used in men's shirtings offers a silky hand and wash-and-wear advantages. Avril with ordinary rayon in men's sport shirts is shrink-proof and absorbent.

Avisco also reports new scientific processing that has improved regular Avisco rayon. It is used with Acrilan in a new fabric on the market for fall '61 apparel that has the look and feel of fine sheer worsted, compared to other sheer wool types. This new blend is crisper in hand and light weight because the high strength rayon fibers permit the yarns to be spun on the worsted system for a higher twist. Its ability to be piece pattern dyed, is a first in the textile field.

A fall treatment for Cotron, the two-year-old family of fabrics woven of cotton and Avisco rayon, is a flannel look that has received a brushed treatment.

Avisco rayon is enjoying a resurgence of popularity in its first important fashion category—crepe—as high fashion once more stresses crepe for elegant evening wear this summer and forecasts crepe's continuing popularity in fall fashions.

Beaunit's Tusson, a new cuprammonium filament

RAYON REBORN—This sports shirt designed for smartness, long wear and easy-care is cut from a fabric of 70% American Viscose Avril rayon and 30% ordinary rayon

yarn with entangled slub, was introduced into spring merchandise for women in a blend with silk by Wedgwood. Two types of fabric were made: (1) a shantung type in better blouses, maternities, coordinated sportswear separates and dresses and in millinery and shoes; (2) a heavier silk-linen weave styled for sportswear and better dresses. At the mill stage now and expected to be in converters' hands shortly are new fabric blends of Tusson and acetate in dress and blouse weights. Advantages noted for Tusson fabrics are their easy drapeability, fine silk-like hand, coolness and body.

Bemberg for High Fashion

According to Beaunit, interest has been building up in Bemberg luxury fabrics for fall and holiday formals and frocks. Combined with silk, acetate or viscose, the Bemberg yarns create fabrics that are indistinguishable from couture silk and are becoming essential to fabric designers wishing to enter the synthetics field with a quality fiber. Bemberg tissue taffetas are being widely placed in top bridal houses because of their luxurious qualities. Taffeta linings with Bemberg yarns are being used in better women's coats and suits, for which vivid fashion colors are available.

Mills are experimenting with Flaikona, a heavily flaked Bemberg yarn able to produce textural interest keyed to the popular raw look. This fiber boasts of a flake that is integrally a part of it and does not pull out.

Cupioni is receiving added attention. Tweedy textured fabric blends with cotton and silk, with a hand more like silk than cotton, have been widely placed for fall transition, early and late, in medium priced dress and suit houses.

A crepe-tail yarn of Narco high-strength rayon is marketed by Cohama for summer apparel in an irregular basket weave of Narco and cotton. Top houses like it because of its textural interest—it's a cross between strawcloth and a raw silk look. The popular color is natural.

FUR-WEARING ANIMAL—The pullover and matching Cossack hat are made of a plush pile fabric containing Eastman Verel modacrylic fiber

There has been extended manufacture of blends of Courtaulds' Topel. A gabardine of 55% Dacron and 45% Topel for women's and men's wear is made by Spinco. An end use of considerable potential for Topel, according to its producer, is a blend of 68% cotton and 32% Topel in denims by Avondale Mills. The addition of the Topel makes for a cleaner fabric.

This has been a big year for prints, and acetate is widely used for its ability to take clear, rich colors in dyeing and printing. Large collections of printed fabrics have been introduced in many categories of women's apparel, including women's, misses' and junior dresses, blouses and rainwear. Beautique Prints by Benrose is the latest group, slanted for fall selling, on a luxurious weave combining 60% Eastman Estron and 40% cotton. Featuring a soft, silk-like hand, the fabric has a Siliconized finish which gives it extra spot and stain resistance. Also for fall at Benrose are two new printed crepe fabrics of 100% Estron.

Diamond White is a new blue-white Chromspun color developed specifically for the bridal market. It eliminates the extra processing which was formerly required to achieve this shade for lustrous satins and peaus and crisp, gleaming taffetas. It is expected to prove promising in many women's fashions such as party dresses, swimwear, knits, foundations, blouses and lounge wear. Other new Chromspun colors this spring are Fiesta Pink 336, Alpine Blue 335 and Regal Violet 337.

New nylon developments include white types such as Du Pont's Type 91 introduced in foundation garments toward the end of 1960; later in flat knits. Also new applications of Taslan textured nylon in lace designs by Liberty with softness, opacity and a three-dimensional effect; and the debut of Du Pont's Antron nylon in the fashion world in young party dresses and skirts.

A heavy-duty nylon thread for home sewing that is stronger than any previous thread has been developed by Advance Silk Thread Corp. A special bonding agent has been applied, imparting a slight stiffness for easy threading and to prevent slippage on the spool.

Orlon Sayelle, the acrylic by Du Pont which was first seen in knitwear last season, appears in woven fabrics this spring through the American Couture. It is used in a blend with wool, to produce a fiber that has been described as having a permanent reversible spiral crimp for added bulk and resilience.

Lighter Weight Tux

To please modern man's appetite for comfort at all times, including formal occasions, S. Rudofker & Sons in "After Six" formal wear is using a tropical fabric blend of 55% Creslan and 45% worsted, weighing 6½ ounces—which is 20% lighter than the usual tropical fabrics. A formal suit of the new fabric is jet black. For resort-spring dinner jackets are white and colored.

Union Carbide's modacrylic Dynel is proving a versatile fiber for functional and fashionable clothing for men, women and children. Used in blends in a range of fabrics called Bondyne, it is appearing in all sorts of sportswear and playclothes and in men's suits. In blends with wool for lightweight fabrics, according to Union Carbide, Dynel acts as a backbone to create a suit that holds its preset press and shape and resists wrinkling.

Union Carbide reports that about 30 licensed mills offer a range of Bondyne fabrics in a price gap just between cotton, rayon and acetate goods and the more expensive polyesters and acrylics. This year there's a broadened range of cotton Bondyne, including lightweight work clothes goods, seersucker and cord type construction.

A cord weave containing 85% cotton and 15% Du Pont 420 nylon has been introduced by Erwin Mills. Because of the wear life contributed by the nylon, pants made of the fabric carry a guarantee of a year's wear.

Denim work clothes and casual sportswear are getting the chic fashion treatment these days. In January, a fashion show by the denim industry, held on the occasion of its 100th year, presented 30 new designs by 17 prominent U. S. designers. It marked the first time that a group of fashion designers donated their collective talents to the designing of utility wear.

Burlap Anyone?

Burlap also has fashionableness this season. It appears in a range of high fashion colors, is made softer and nearly odorless and is available in a variety of items ranging from hats and shoes to skirts, jackets, shorts and coats. In early spring selling, stores reported good sales with sportswear of the woven fabric made of jute fiber.

To further round out the modern wardrobe of manmade materials, new handbags and shoes are available. These are made of 1100 denier Rovana by Dow Chemical Co. This denier is closer in styling and appearance to a straw yarn. The handbags are made by Theodor of California. The Rovana is described as pliant, colorfast and easy to wipe clean with a damp cloth. Chicopee Mills, currently weaving the shoe fabric, has launched the program with Lapari who is selling the shoes on special order through Bonwit Teller. Depending upon the color combinations of the weave, the high sheen of the Rovana gives the look of silk or of straw. It is therefore used in evening shoes as well as summer or spring styles. ■

PAPERS OF THE
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AATT

WOVEN STRETCH

This new dimension in loom-produced cloths offers promise of profitable business. Here are some insights and background to shape your own decision regarding these fabrics

By Joseph H. Hamilton

On March 16, 1961, Tobe Coller Davis, probably the most influential voice in fashion retailing, issued to her subscribers a special report which was headlined "We are on the threshold of a whole new world of fashion via stretch." Those of us who have been intimately associated with this development for the last five to seven years or so couldn't agree with her more. Nevertheless, this is an appropriate occasion to take a long, hard look at this "whole new world" as it stands today.

The widespread interest in the textile industry today in woven stretch fabrics bears out the fabulous potentials in these constructions. But also attendant are pitfalls, problems and risks equally commensurate with the opportunities offered. The present situation facing us in the development of this field creates a challenge for the fabric technical group to grasp the overall picture of potential markets and timing; limitations of yarn supply or yarn types; the multitude of problems encompassing selection of the right yarns; the weaving, finishing, cutting, sewing of these fabrics into garments with all factors meshed properly into the correct merchandising concepts and actions.

But the problems don't end there and continue on through the chain of distribution of stocking, promoting, training and selling the concept of stretch to sales people and to customers. The problems to date in weaving and merchandising stretch fabrics become so complex that individuals in the fabric technical group with various mills and converters are virtually the only ones fully qualified to make or guide major decisions by their organizations concerning these programs. In many cases the direct assignment of full responsibility to one individual for the entire program from original concept to completion has speeded up progress in getting these fabrics on the market.

Let's leave the superlatives about potentials and go to the background facts about what is going on in Europe and what could logically be expected to happen here. Remember that mills and technicians in Europe have been working day and night for years developing these woven stretch fabrics with gradual growth of the market and solid foundations laid over more than ten years. A rapid expansion of stretch woven fabrics is proceeding solidly and successfully in Europe at the present time. Only this week I saw a new collection of "Helanca" woven fabrics just assembled in Europe by Hans Borst, Merchandising Manager of the Heberlein Patent Corp., Wattwil, Switzerland. The collection was so extensive that every American mill could probably pick several styles without competing with another mill.

Various textile executives from Europe estimate that woven stretch fabrics are now consuming from 20% to 40% of available stretch yarn production in Europe and all have the feeling that this is just getting off the ground. Translated into comparable fig-

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Joseph H. Hamilton

Paper presented at the May 31, 1961 meeting of the American Association for Textile Technology at New York, N. Y.

ures or estimates for this country, 20 to 40% of our stretch yarn production would mean 7 to 14 million pounds of 2/70 stretch nylon annually going into stretch woven fabrics with additional growth possibilities. It seems conservative to estimate, based on all known facts today, that weaving in 1961 should consume 3 to 4.5 million pounds of textured filament yarns based on 2/70 denier. 1962 should see this grow to 5 to 7 million pounds; and by 1963 the consumption of textured or stretch filament yarns for weaving should reach at least 8 to 10 million pounds. Actually, this growth could accelerate depending upon how fast and how closely the yarn producers, the throwsters, the weavers, finishers, converters and garment manufacturers work together on their mutual problems. With all of the knowledge that is now available among those groups interested, it should be possible for us to do in a short space of time what it has taken years to accomplish in Europe.

How Much Production?

In terms of looms, the best guestimate available as to how many looms would be on woven stretch fabrics is as follows:

1961 - - - - 500-800 looms
1962 - - - - 900-1500 looms
1963 - - - - In excess of 1500 looms

In terms of looms or pounds these estimates must sound very small to most of the larger mill organizations. However, in terms of the throwing industry it is consequential and substantial. For our industry which has operated generally on a curtailed basis over the past 18 to 24 months, but which has been running behind on deliveries in recent weeks, I feel certain it means additional expansion to handle the particular and special requirements of the weaving trade.

With further reference to what has been done in Europe on these stretch woven fabrics, it might be fair to say that in some cases we have been so worried about cheaper foreign fabrics imports that we have been blind to the merchandising possibilities of the most expensive fabrics which have been imported over the last three years in ever-increasing amounts. The volume of these imports either in fabrics or garments has amounted to a substantial yardage considering the price ranges involved. It is gratifying to see how quickly our technical groups have risen to this challenge and to see in many instances fabric quality equal to the best from Europe.

European Finishing Gains

Piece dyed fabrics in Europe have been perfected the longest. A Swiss weaver told me only this week that finishing of these fabrics in Europe has become a routine matter. If the piece comes back without enough stretch they look first to yarn or weaving problems, not to finishing.

We are told that yarn-dyed or colored warp woven stretch fabrics now amount to about one-third of the present stretch weaving production in Europe. I can say that we are now in production on dyed weaving yarns with the same modulus or energy of recovery as the natural yarns. But indications are that the finished fabric, since it is only boiled off and framed after weaving, actually has as good or better modulus and stretch than the piece-dyed fabrics. The high price of piece-dyed woven stretch fabrics, as contrasted to the price of premium non-stretch fabrics, serves to highlight the need of more thinking along the lines of novelty or fancy goods. The cost of piece-dyeing goes far towards equalizing the cost of dyed stretch yarns.

In summarizing European activities in the field of weaving stretch yarns, I want also to highlight the rapid growth in the weaving picture of textured filament yarns of both nylon and polyester as opposed to the stretch yarns. In many cases the processing of the yarns is very close to that of the stretch yarns. But they are usually woven single end for texture, hand and coverage rather than for the functional value of stretch. The same parallel development on textured nylon and Du Pont Dacron yarns is well underway in this country. Dacron or polyester yarns in this area may become even more important than nylon. This domestic weaving field should also grow at close to the same rate for lingerie, blouse, dress, shirting, and rainwear. In France, alone, we understand that 75% of the fabrics made with stretch filament yarns are for the functional value of the stretch and the other 25% for the effect of texture, hand and coverage rather than for stretch.

Throwsters Have Know-How

I alluded earlier to the capacity of our false twist throwing industry which is in the neighborhood of 32 to 36 million pounds annually based on 70 denier. Most of you are aware that a substantial part of this capacity came about from speeding up the spindles by a very substantial amount rather than by adding equipment. In most cases the speeding up of the spindles over the last few years came about not from increased demands or the yarns, since our industry has seen substantial curtailment in all but a few months over the last several years, but rather the speed-up came from the competitive price pressures constantly being forced upon the throwsters.

In the main the throwsters today are intimately aware of all the problems of making a satisfactory weaving yarn if they are asked to furnish the best possible yarns and all the requirements for the fabric and its end usage are clearly spelled out to the throwster. This eliminates the need for the weaver to become involved in the problems of the throwster's equipment. Most throwsters have more than one type of false-twist equipment or have plans underway to install more. It is our feeling that the yarn quality and availability will keep pace as problems are worked out in weaving and finishing so to increase the demand.

We urgently recommend technical groups to tell their yarn suppliers or throwsters the exact end usage and requirements for the yarn. Many times the throwster may have information on certain yarn constructions and where they should go. Otherwise many months of time and expense may be wasted from embarking on a program where the desired end results are not mutually understood.

The building blocks for the successful woven stretch fabric involve the following:

A. The right raw yarn—this means the new higher elongation nylon in either 70 denier 13 filaments or 70 denier 17 filaments now available from the major nylon suppliers. The other filament counts, such as 34 filaments, are important only where hand is desired and recovery power can be sacrificed.

B. The right false-twisting—this is the crucial point where you must rely completely on the technical know-how, ability and integrity of your throwster after you have carefully spelled out the yarn and fabric performance expected and desired. Quality must be the prime consideration rather than cost, at least in the present stage of development.

C. The right post or ply twisting—this is the area where the throwsters and weaver must work together even to the extent of trying to correlate yarn performance tests with fabric tests in order to achieve the desired modulus, hand, abrasion resistance, and other aspects of fabric performance. Each yarn must be specifically engineered to suit the specific end usage. Failure to recognize this very simple fact has been responsible for more waste and more disappointment than any other reason.

Yarns Must Be Right

A prime factor for disappointment in early weaving attempts has been the use of stretch yarns, although highly suitable for other end uses, that have not been designed for use as warp or filling stretch yarns. Substitution of such yarns can only lead to failure for the reasons previously outlined.

In terms of the right building blocks there seem to be so many questions or doubts about the correct ply twist that it serves best to emphasize again my point that each yarn must be specifically engineered to suit the specific end usage and fabric. On this point there is now unanimous agreement among throwsters, yarn producers and false-twist machinery producers. Because of this each mill will take a different method or path to achieve the same end result. This is good for all of us because it makes it difficult to duplicate exactly all aspects of a fabric.

Generally speaking, the lower the ply twist in the yarn, the greater the shrinkage in the boil-off and the greater the stretch in the fabric. Many millmen are aware of this and will not be fooled by the shrinkage or by the amount of stretch alone. Stretch is not everything or an end unto itself; rather it is the modulus or the energy of recovery that is all important in the functional value of these fabrics. In most cases we have found that the higher the post or ply twist, the better the modulus or recovery power. While ply twisting, up to a certain point, enhances the modulus and guards against pilling, too high a ply twist has just the opposite effect—the yarn stiffens and hardens filaments which start to break, and the fabric pills.

Use of "Unbalanced" Yarns

A development in this country which also seems to enhance the power of recovery is the use of unbalanced yarns; that is, two ends of the same torque plied together rather than plying one "S" and one "Z" torque which balance each other in the final yarn. While this can lead to some cloth rolling in the lighter weight fabrics, it is an area where only the mill, converter and cutter can determine how much rolling is objectionable.

The bench mark for yarn quality and attributes for weaving has been based on the results obtained in Europe using the 2/70/23 filament conventional Helanca SP yarn. We have already seen the best of these fabrics duplicated in this country by reliable mills using false-twist yarns that have been post-twisted. This post-twisting is probably necessary for the heavier fabrics but does add 30 to 60¢ per pound to the cost of the yarn. The trend in Switzerland, Germany, Austria and Italy is towards lighter weight fabrics which use a balanced torque yarn with a straight ply twist of 7 turns. This is the area where the throwster has been constantly improving the false-twisting procedures which may eventually decrease the amount of expensive post-twisting necessary.

Should Warps Be Sized?

The question has come up many times recently about sized versus unsized warps. It has been cited that European mills generally do not run sized warps. It is our understanding that this is strictly a matter of equipment available. Both ways are satisfactory and it is just a matter of mill equipment. Mills in this country seem to favor a light sizing where feasible for the following reasons:

1. Protection of warp ends.
2. Better weaving efficiencies.
3. More uniform warp tension control.
4. Will narrow down pick range variations necessary from loom to loom.

From all reports, we suspect that the finishers are now going through problems similar to the throwsters' over the last 18 months in trying to give the weaver or converter the right amount of stretch and recovery power. We know that they are working hard to overcome these problems and are well along the way. As mentioned above, this is no longer a problem in Europe on similar fabrics and should not be here. With the proper yarns and the proper finishing the greige mill should adjust the amount of stretch or shrinkage by pick changes alone. We feel sure you will never tell the finisher to adjust the percentage of stretch in his own processing. If the stretch is held out, we feel it will kill part of the modulus and fabric performance or have serious effects on the residual shrinkage. We think it best not to build too much shrinkage into the cloth because it can and should be finished with modest loss of stretch.

Help Is Available

Having covered general background information, practices and future potentials, I would like to mention the large group of companies other than weavers who are vitally interested in the success of these textured or stretch weaving programs. Most of them have large task groups working on "crash programs" in order to accumulate helpful information and know-how that can be passed on to throwsters, weavers, finishers, and cutters as well as work at the retail and consumer level. Many millmen have already seen the brochure and fabric collections being made available by the major nylon producers. These companies have large scale fabric evaluation programs underway. Over the next three months we expect to see a constant flow of information being made available on evaluations of all types of yarns and yarn preparations correlated with actual fabric results.

The major machinery suppliers are bringing out or have new technical information and bulletins covering detailed technical information on weaving these yarns. The Heberlein Patent Corp. which administers the "Helanca" trademark program have experience going back further than any other group since most of the imported garments have carried the "Helanca"

trademark. We recommend study of all the information coming from these groups. Because of the many pressures at the moment many millmen most vitally interested will want to seek out the key people in each organization to keep up to date because the call on their time is such that they can't possibly cover the "waterfront." The amount of technical help and information from reliable and responsible sources who have major interest in seeing to the success of these weaving programs is developing at an astounding rate and available for the asking. All of this is being coordinated in broad programs which will be of real assistance to all interested in woven stretch fabrics.

Impact Will Be Hard

I am afraid that many times we think too much about future potentials and too little about future problems. We slip on the first rung on the ladder because of keeping our eye on the second or third rung. One thing is now certain; these new stretch and textured fabric developments are going to have a tremendous impact on our throwing industry and we hope on the weaving trade as well. Whether this revolutionary fabric concept is to be sane, orderly and profitable, or whether it will rapidly degenerate into a rat race, is going to depend in great measure on the common sense of the American textile industry.

Our throwing industry is a very volatile trade where demand for our product has almost unpredictable swings and competitive pressures. We are just now recovering from the effects of trying to push some 6 or 8 million pounds of stretch yarn into a market that two years ago could absorb only about 3-4 million pounds; namely leotards or tights. The sensible manufacturers and merchants of these tights or leotards who maintained their quality against all types of pressures survived and, in most cases, had a very good past season because the opportunists who were in for only a "one season ride" had got out of the field.

Quality Fabrics Needed

In some cases (and this is the most frightening thing about our present market) bad fabrics have been and are being marketed today. Under strong pressure from merchandising echelons development men have released fabrics which cannot possibly fulfill their requirements. If enough of these bad fabrics are marketed this year it is going to take us years to recover from the inevitable bad taste which we ourselves created.

There are two obvious reasons for this present marketing of substandard fabrics:

1. The "jump" on the bandwagon and "make a quick buck" philosophy, which seems to be an inescapable part of our industry.
2. A general lack of specific standards as to what does or does not constitute an acceptable fabric.

A notable exception to this generality is the Heberlein Patent Corp., owners of the "Helanca" trademark. They have a tremendous fund of experience built up by close association and active participation in the development of woven stretch fabrics in Europe. It is significant that the Helanca name is widely used in Europe on stretch garments of every type and has become symbolic of high quality. Heberlein recognized long ago the need for quality control standards on both yarns and fabrics.

Naturally, Heberlein has been reluctant to publish data concerning testing methods since they must protect the interests of their "Helanca" licenses. It is well to refer to the "Helanca" standards for finished garments or fabrics, when in doubt, because they do indicate what can and is being achieved in Europe. For example, there has been much talk about the amount of residual shrinkage in recent weeks and that you might be getting more than is desired. Heberlein's standard on this is 2% residual shrinkage after sponging.

The major nylon producers are also working on yarn and fabric performance standards, which they are making available, but from the throwsters standpoint the Helanca trademark is our only possible rallying point to maintain certain standards of performance and quality. Heberlein is also the only agency for the throwster to work through directly on promotional work. For these reasons it is my recommendation to the throwsters in our industry that every pound of weaving yarns they ship be with the "Helanca" trademark and that the Heberlein group police such yarn standards with the same vigor as they promote the "Helanca" name. This, I feel is the best service and insurance that we throwsters, as a group, could render to our customers at the present time.

Testing Procedures Needed

In addition to lack of specific or clearly measured standards, there is a crying need for simple yarn and fabric testing procedures which any mill can perform without expensive or specialized instruments. We have been able to get interesting correlation results with the Heberlein "elastic pull" test for weaving yarns. Henri Crouzet, head of the ARCT organization, also has done considerable pioneering work in this field evaluating or rating yarns as to their energy of recovery on the Rothchild Tester. We hope to have both these methods in more active use in our own laboratory for development work very soon. Du Pont Chemstrand, Leesona and others are also evaluating methods and procedures along the same lines.

Exactly, where then do we stand today in this new world of fabrics? There are no pat answers, no simple ABC's for guaranteed success. It is an area of confusion, doubt, disappointment, hard work and, for a dedicated few, most profitable success. There are no short-cuts to this success. Painstaking care, checking, and rechecking are absolutely vital until the re-educational process is complete for all those who work on it.

We are being presented with an opportunity to throw off all of the limitations we have learned to live with in the stable fabrics. Radical new concepts of fashion, style, utility and comfort are ours for the taking and are limited only by our skill and imagination. In the realm of fit alone we are on the threshold of being able to guarantee perfect garment fit right off the rack. Not all of us are perfect 36's. Our better designers are awakening to the tremendous style potential of stretch fabrics and are literally begging for the quality fabrics which will enable them to achieve their goals. I cannot recall another instance when we in the technical divisions have been presented with such a large opportunity or have been asked to assume such far reaching responsibilities. The ultimate success of our efforts depends upon whether we accept and discharge these responsibilities wisely and honestly. ■

TEXTILE — NEWS BRIEFS

Spun-lo Fabric Sales

Industrial Rayon Corp. has reached an agreement with Spun-lo Eiderlon, Inc., whereby the latter firm will continue to market Spun-lo and Eiderlon fabrics. Industrial Rayon will terminate production of these fabrics at its Covington, Va., plant, in about two months, at which time Spun-lo Eiderlon, Inc., will proceed with arrangements to have the fabrics produced at other facilities. Industrial Rayon reported last fall that it planned to discontinue the manufacture of knit fabrics. Spun-lo Eiderlon is a new firm headed by Alvin A. Schoenberger, formerly sales manager for the past 25 years of Industrial Rayon's knit cloth division.

Complete Dutch Plant

The Foxboro Co., Foxboro, Mass. has completed a new instrument and assembly building at the Foxboro (Nederland) N. V. plant in Soest, Holland. The new structure, which gives the plant a total area of nearly 40,000 square feet, will permit a substantial increase in the production of standard Foxboro instruments supplied to industries in the European Common Market.

New Avril Bulletin

American Viscose Corp. is now circulating a new technical service bulletin covering characteristics and properties of its new stable rayon product identified as Fiber 40 (Avril rayon). Included in the brochure are comparison charts and tables relating test data resulting from textile development projects conducted since the fiber was first announced to the trade last year. *For a free copy, write the editors.*

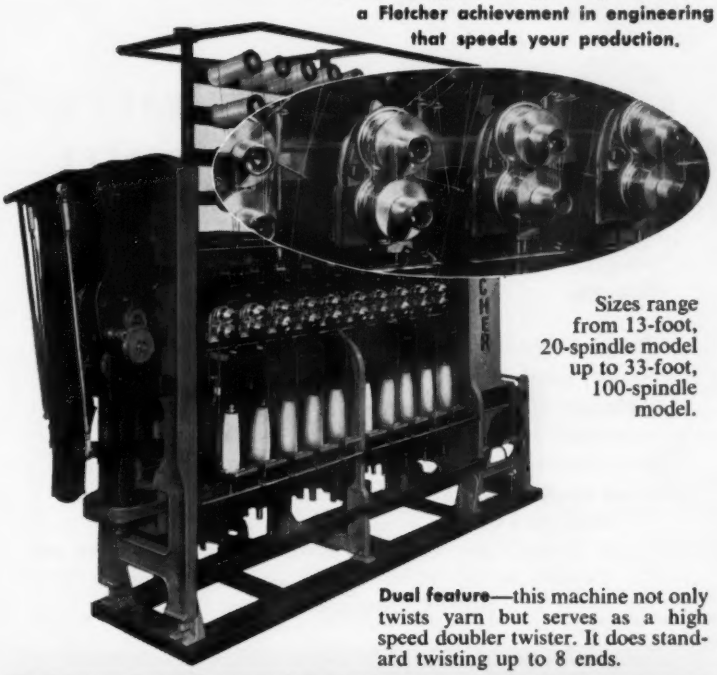
GAF Expansion Plans

General Aniline & Film Corp. has announced the first step in a 5-year program to increase production capacity at its Calvert City, Ky., plant. The expansion at the plant, part of GAF's Dyestuff & Chemical Division, is designed to meet anticipated sales in acetylene chemical products, surfactants and intermediates. The Calvert City facilities will be expanded for manufacturing pyrrolidone and vinyl-pyrrolidone, and also for surfactants and intermediates now being produced there which formerly were made only at the Linden, N.J. plant.

NEW from FLETCHER

HIGHEST SPEED NOVELTY YARN TWISTER EVER MADE

This Novelty Yarn Twister, which operates at a speed of 5,000 to 9,000 RPM, depending on the type of yarn used, is a Fletcher achievement in engineering that speeds your production.



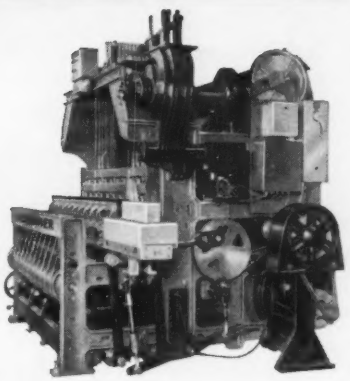
Sizes range from 13-foot, 20-spindle model up to 33-foot, 100-spindle model.

Dual feature—this machine not only twists yarn but serves as a high speed doubler twister. It does standard twisting up to 8 ends.

TRY BEFORE YOU BUY with 3-month trial rental plan

Get proof before you pay by evaluating these machines in your own plant. They are available for delivery, completely assembled. See them in operation in the Fletcher Industries Showrooms in Cheltenham, (Philadelphia) Pa.

NYLON AUTOMOBILE SEAT BELT LOOM



This loom is made specifically to meet the fast-growing demand and to overcome the shortage of equipment for the manufacture of automobile seat belts.

Fully equipped and erected **$5,000**

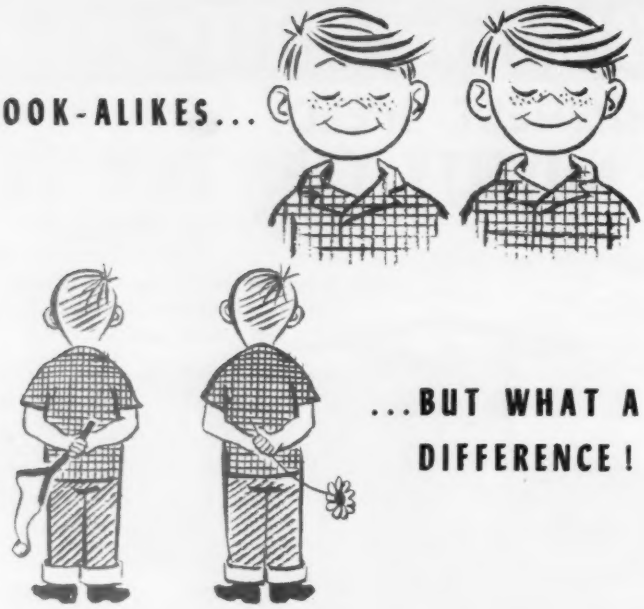
FLETCHER INDUSTRIES

Hasbrook Avenue and Beecher St., Cheltenham, (Phila.) Pa.

FLETCHER SOUTHERN — **SOUTHERN PINES, N. C.**

FLETCHER INDUSTRIES — **STATESVILLE, N. C.**

LOOK-ALIKES...

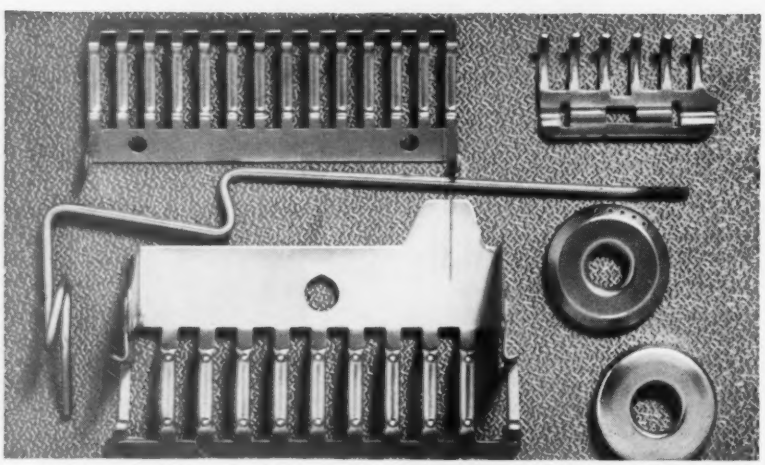


...BUT WHAT A DIFFERENCE!

The fact that all Hard Chromium Plating looks the same may mislead you.

During 26 years of successful experience, we have proven many times to our customers (Some of whom have been with us for 20 years or more) that our fast, efficient service and "know how" mean "dollars in their pockets."

Why go through the trial and error method when we are experts in our chosen field . . . top quality Hard Chromium Plating.



The leading name in textile HARD CHROMIUM PLATING, both satin and polished finish.

Walhard

WALTON and LONSBURY

79 NORTH AVENUE ATTLEBORO, MASSACHUSETTS

New Nylon-Rayon Tire

The rubber industry's first tire combining nylon and rayon fabric has been developed by Seiberling Rubber Co. Seiberling said it would shortly begin distribution of a tire with two plies of nylon cord fabric and two of high-tenacity rayon. A company official said the combination has the advantages of nylon's strength with the rayon providing riding comfort and reduced vibration.

Du Pont Dyes Office Moved

In a move to provide improved services to customers in New York State and northern New Jersey, the Du Pont Dyes and Chemicals Division recently has transferred its New York district sales office, laboratory and warehouse to a new building at 50 Page Road, Clifton, N. J. The Division produces textile finishing agents and auxiliary products, and a full line of dyes used by the textile and other color-consuming industries.

Booklet on Wool

A fifth printing of "American Wool Round-Up," the story of wool "from sheep to shop", has been completed. Woolens and Worsteds of America, Inc. reports more than 100,000 copies already have been distributed. The booklet features a complete glossary of popular American wool fabrics as well as information on wool fiber. Copies are available at no charge by writing the editors.

Patent Infringement Charged

The National Drying Machinery Co. announced it has brought suit in U.S. District Court against The Adams & Zeller Corp. and A. M. Zeller, personally, for infringement of patents. National Drying Machinery Co. contends that only it can make and sell the patented machines and that only its customers can use the patented machines.

Receives English Award

Dr. Jacques E. Wegmann, a chemist in the Dye Laboratories of Ciba Limited, Basle, Switzerland, was recently awarded in London the Worshipful Company of Dyers' Research Medal for 1959-60. Dr. Wegmann, working for a two-year period with the Toms River Chemical Corp., was presented with the award for his research on the "Effect of Structure on the Change of Color of Vat Dyes on Soaping."

New Draper Appointments

The following new appointments have been made by the directors of Draper Corp.: William K. Child, executive vice president and general sales manager; J. Craig Huff,

(Continued on page 67)

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarn, staple and tow as reported by the producers in May 1961. All prices are given to change without notice.

CELLULOSIC YARNS

ACETATE

American Viscose Corp.

Current Prices Effective March 22, 1960

Bright and Dull

Denier & Filaments	Intermediate Twist** Twister Cones	Twister T-Tubes	Warps	Spinning Twist Cones & C-Tubes	Warps
40/11	$	$	$	$	$1.14
45/14	....	....	....	....	1.03
55/14-20	.99	.97	1.00	.93	.87*
75/18	....	....	....	....	.90
75/20	.95	.93	.96	.89	.90
100/28	.91	.89	.92	.85	.86
120/32	.82	.80	.83	.76	.77
150/36	....	....	....	....	.70
150/41	.74	.73	.75	.69	.70
200/54	.70	.69	.71	.66	.67
240/80	....	....	....	.65	.66
300/80	.66	.65	.67	.62	.63

* Tricot Spools Only.
** Standard Twist 2¢ Additional.
Terms: Net 30 Days.

Celanese Fibers Company

Current Prices Effective March 22, 1960

Acetate Filament Yarn Prices
Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	4-Pound Cheeses	Spinning Twist Cones	Beams	O Twist Tubes
45/13	$1.12	$1.13	$	$	$1.03*	$ ....
55/15	.99	1.00	....	....	.87*	.82
75/20	.95	.96	....	.89	.90	.86
75/50	.97	.98	....	....	.92	....
100/26-40	.91	.92	....	.85	.86	....
120/40	.82	.83	....	.76	.77	....
150/40	.74	.75	.74	.69	.70	....
200/52	.70	.71	....	.66	.67	....
240/80	.68	....	....	.64	....	....
300/80	.66	.67	....	.62	.63	....
450/120	.66	.67	....	.62	.63	....
600/160	.65	.66	....	....	....	....
900/80-240	.63	.64	....	....	....	....

* Tricot beams only. This item with Permachem—$.05 additional.
3T/10 electrical finish available at no premium.

3 to 5 turns on Cones or Beams	$.02 Additional
Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn
150 Denier 12-TM Tubes	$.73
3 Pound Cheeses	$.01 Less than 4-lb. Cheeses
2-BU and 4-BU Tubes	Same price as 4 & 6-lb. cones
Premium for Serving Tubes	$.05
Part Cone Premiums: 2-lbs.	$.05
1-lb.	$.10
Under 1-lb.	$.20

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
*150/40	1.11	1.12	1.06	1.07
200/104	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/240	.94	....	....	....

* 150/2Z/40 available in all colors. Contact our District Sales Representative for current availability of colors in other denier.

Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn

Celaperm Black Yarn Prices

Effective March 22, 1960

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

3 to 5 turns on Cones or Beams	$.02 Additional
Over 5 turns—55 denier	$.06 Additional per Turn
Over 5 turns—75 denier	$.04 Additional per Turn
Over 5 Turns—100 denier	$.03 Additional per Turn
Over 5 turns—150 denier & coarser	$.02 Additional per Turn

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Acele"* Acetate
Bright & Dull

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Bms.
45-13	$.94	$1.02						
55-18	.82	.86					$.99	$1.00
55-24	.82	.86					.99	1.00
75-24	.86	.89		$.90		$.93	.95	.96
75-50				.92		.95	.97	.98
100-32	.82	.85		.86		.89	.91	.92
120-50	.73	.76		.77		.81	.82	.83
150-40	.66	.60	$.69	.70			.74	.75
200-60	.65		.66	.67			.70	.71
240-80			.65				.69	
300-80	.60	.62	.62	.63	$.66		.66	
450-120	.61		.62	.63	.66		.66	
600-160					.65		.65	
900-44					.63***			
900-240	.61**						.63	
1800-88					.61***			.62***
2700-132					.61***			
3000-210					.61			

1800 Type 20 only.
(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.
** Bright only 2" Tubes.
*** Type 20 only.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist Cones	Beams
75-24	$1.18	$1.28		$1.29	$1.34	$1.35
100-32	1.14			1.23	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.11	1.12
300-80		.97			1.01	1.02

Black

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 4 & 6 Lb. Tw. Tbs.	Cones	Beams
55-18	$1.045					$1.17	$1.18
75-24	.98	$1.08		$1.09		1.14	1.15
100-32	.94			1.03	$1.06	1.08	1.09
150-40	.83	.86	$.86	.87	.91	.91	.92
200-60					.85	.85	.86
300-80	.75	.77	.77	.78	.81*	.81	.82
900-44					.74*	.74	

* 2 & 4 lb. ⅝" tbs. is same price as 4 & 6 Tw. Tbs.

Specialty Yarns
Cycloset for Tricot

	Tubes	Beams
40-13 Natural	$1.07	$1.14
55-18/24 Natural	.83	.87
75-24 Natural	.87	.90
100-32 Natural	.83	.86
40-13 Black	1.22	1.29
55-18 Black	1.08	1.12

Terms: Net 30 days. Subject to changes without notice.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.
* Dupont's Trademark for its acetate yarn.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Current

"Estron"* Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Beams	Intermediate Twist Cones	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Tricot Beams Zero Twist
55/13	$1.01	$1.02	$0.99	$1.00	$0.93	$0.94	$0.82	$0.87	$0.86
75/19	.97	.98	.95	.96	.89	.90	....	.90	....
75/49	.99	1.00	.97	.98	....	....	....	....	....
100/25	.93	.94	.91	.92	.85	.86	....	....	....
120/30	.84	.85	.82	.83	.76	.77	....	....	....
150/38	.76	.77	.74	.75	.69	.70	.66	....	....
200/50	.72	.73	.70	.71	.66	.67	....	....	....
300/75	.68	.69	.66	.67	.62	.63	.60	....	....
450/114	.68	.69	.66	.67	.62	.63	....	....	....
600/156	.67	.68	.65	.66	.62	.63	....	....	....
900/230	.65	.66	.63	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.58	....	....

Current

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.
Prices on special items quoted on request.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Estron" is a trade-mark of the Eastman Kodak Company.
* Chromspun is a trade-mark of the Eastman Kodak Company.

RAYON

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Twist Skeins	Twisted Skeins & Cones	8½ Turns	High Twist Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.29	1.55	....	....	....	1.85
65/45	1.22	1.38	....	$1.61	....	1.66
75/60**	1.11	1.25	....	1.48	$1.53	1.56
100/74**	1.02	1.15	....	1.40	1.45	1.51
125/60	1.01	1.12	$1.16	1.37	....	....
150/120	.99	1.08	1.18	1.33	....	....
300/225	....	1.01	....	....	1.14	....
900/744	....	.91	....	....	....	....
1800/744	....	.91	....	....	....	....

*Includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.
** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Twist Tubes	No Twist Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.05	1.05	....	....	....	....	....
65/45	1.13	....	....	....	....	$1.50	....
75/45*	1.04	....	$1.15	$1.15	$1.38	1.38	$1.46
100/60*	.96	....	1.10	1.10	1.30	1.30	1.38
125/60	.91	....	1.06	1.06	....	....	....
150/90*	.83	....	.87	.87	1.21	1.21	1.30
150/120	.87	....	....	.99	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" Spool Spun Yarn

Den/Fil	No Twist Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.48	1.58	1.58	1.78	1.88
100/60	1.38	1.48	1.48	1.68	1.78
150/90	1.21	1.28	1.28	1.63	1.73
300/120	1.21	1.28	....	....	....

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.50	$1.40
1519**	155/90	....	....	1.50	1.40
2008	200/120	....	....	1.11	1.01
3002	315/180	$1.15	$1.05	....	....
4011	410/224	1.15	1.05	....	....
6001	600/360	1.13	1.03	....	....
8001	860/450	1.13	1.03	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.
** Code 1519 can be run in warp or filling.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones
9650	70/45	$1.69
9660	100/60	1.53
1545	150/90	1.35
9730	285/135	1.15
9792	450/225	1.15
9819	600/372	1.12
9837	940/372	1.02

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black Comes in all deniers."

STRATA SLUB

Code	Den/Fil	Twisted Cones	Price
9747	275/225	3½ Turns	$1.25
9798	450/372	2½ Turns	1.15
9823	600/372	2½ Turns	1.10
9847	960/372	2½ Turns	1.02
9885	1290/372	1½ Turns	1.00
9934	2680/744	1½ Turns	1.00

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Twisted Cones	Price
9699	150/148	2½ Turns	$1.35
9769	300/224	2½ Turns	1.25
9782	450/270	2½ Turns	1.05
9809	600/360	2½ Turns	1.05
9840	900/450	2½ Turns	1.00
9924	2000/744	2½ Turns	.95

TUSSON

Code	Den/Fil	2½ turn Cones	3½ turn Cones
9668	100/60	....	$1.58
9678	150/90	$1.35	
9745	285/135	1.20	
9783	450/225	.85	
9821	600/372	.80	
9828	940/372	.75	

Spun Dyed Cupracolors 30¢ extra per lb.
Available in 450 denier only.
Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice.

American Enka Corp.

Current Prices
Effective February 29, 1960
Standard Quality Yarns

NATURAL

Den./Fil.	Luster	Turns		Weaving Cones	Weaving Beams	Skeins Long	Skeins Short	Cakes	Knitting Cones
50/18	E	5	S	....	....	....	....	....	1.63
50/20	B	4	S&Z	....	....	....	....	1.52	1.64
75/10	B	3	S&Z	....	....	....	....	1.02	....
75/18	E	4	S	....	....	....	....	....	1.14
75/30	B	2.5,4	S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/30	B	8	S	1.24	....	1.49	1.59	1.12	1.24
75/45	P,E	2.5,4,5	S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/60	B,P	3,4	Z	1.16	....	....	....	1.04	....
100/14	B	3	S&Z	....	....	1.15	1.23	.90	....
100/40	B,E	12	S&Z	....	....	....	....	....	1.29
100/40	B,P,E	4,5	S&Z	.98	....	....	....	.90	.98
100/40	B	6	S	1.17	....	1.34	1.44	1.09	....
100/40	B,P	2.5,4	S&Z	.98	.98	1.15	1.23	.90	....
100/60	B	4	S&Z	....	....	....	....	.90	....
100/60	E	2.5	S	1.00	1.00	....	....	.92	....
125/40	E	3	Z	....	....	....	....	.87	.90
125/50	B,P	3	S	.96	.96	....	....	....	....
150/40	B,E	0		.745	....	....	....	....	....
150/40	B,P,E	2.1,3	S&Z	.82	.82	.96	1.03	.78	.82
150/40	B,E	5	S&Z	.90	.90	1.15	1.25	.86	....
150/40	B,E	8	S&Z	.95	.95	1.20	1.30	.91	....
150/60	B	3.0	S	.82	.82	....	....	....	....
150/90	E	2.1	S&Z	.83	.83	....	....	.79	....
200/40	B	2.1	S	.81	.81	.94	1.01	.77	....
200/40	P	3	Z	....	....	.94	1.01	.77	.81
250/60	P,E	2.4	Z	....	....	.93	1.00	.77	.80
300/30	E	3	S	.81	.85	....	....	....	....
300/40	B	3.2	Z	.73	.73	....	....	....	....
300/50	B,E	3	S	.73	.76	....	....	....	....
300/60,120	B,P,E	2.1	S&Z	.73	.73	.82	.89	.71	.73
300/60	B	3.5	S	.73	.73	.82	.89	.71	....
300/60	B	6	S	.86	.86	....	1.00	.84	....
300/120H.T.	B	2.5	S	.75	.75	....	....	.73	....
450/60	B	3	S	.69	.71	....	....	.67	....
450/80	B,E	3	S	.69	.71	.78	.85	.67	....
600/80	B,E	3	S	.73	.75	....	....	....	....
600/120	B,E	3	S	.69	.71	.78	.85	.67	....
900/120	B	3.4	S	.69	.71	.78	.85	.67	....
900/120H.T.	B	3.4	S	.71	.71	....	....	.69	....

B = Briglo
P = Periglo (Semi-Dull)
E = Englo (Dull)
H.T. = High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Beams	Colors
100/40	Regular	2.5S	$1.35	$1.35	All
150/40	Regular	2.1S	1.17	1.17	All
200/40	Regular	3.0S	1.28	1.28	All
300/120	Regular	2.1S	1.09	1.09	All
450/80	Regular	3.0S	1.05	1.05	All
600/80	Regular	3.4S	1.04	1.04	All
300/40	High	3.4S	1.11	1.11	All
900/120	High	3.4S	1.06	1.06	All

® Registered Trade Mark for American Enka Solution-dyed Rayon Yarn.

Skyloft® (Lofted Rayon Filament Yarns) Natural and Jetspun®

Denier	Denier per Filament	Twist	Cones or Tubes Natural	Cones or Tubes Black	Other Colors
1000	7.5	3.4S	$.82	$1.06	$1.06
5300	15	3.0S&Z	.65	.75	.82

Registered Trademark for American Enka Texturized yarn.

American Viscose Corp.

Effective October 13, 1959

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	Cones Tubes	Beams Spools	Cakes
			Regular Turns				
75	10-30	Bright	$1.41	$1.32	$1.14	$1.14	$1.02
75	30	Dull	....	....	1.14	1.14	1.02
100	14-40	Bright	1.23	1.15	.98	.98	.90

TDI News

(Continued from page 40)

"sold out", according to Hilda A. Wiedenfeld executive director. The three day outing, an all-stag affair, will be held June 14-16 at the Concord Hotel, Lake Kiamesha, N. Y., two hours' drive from New York City.

Miss Wiedenfeld also reported that plans for the musical show that is a traditional feature of the Golf Tournament are progressing well with frequent rehearsals being held currently in New York City.

Loomskill Joins TDI

Membership in the Textile Distributors Institute has been extended to Loomskill, Inc., according to an announcement by Irving Roaman, TDI president. Loomskill is located at 1412 Broadway, New York, 18, N. Y. Officers of the firm are Eugene Messner, president, and Joseph Brodie, executive vice president.

Unifil Now on Box Looms

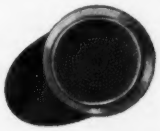
Leesona Corp. reports its Unifil loom winders are now available for use on Crompton & Knowles S-6 box looms running single filling yarn. The Unifil unit is an attachment to a loom for automatically winding and supplying yarn. Many thousands of Unifils are already in use on single shuttle looms.

According to Robert S. Pennock, vice president of Leesona's domestic sales division, mills running both single shuttle and S-6 box looms can realize the full benefits of the Unifil loom winder's versatility and economy since they can place Unifil on their full complement of looms.

Through these guides
pass the world's finest yarns!

We, the creators of
LAMBERTVILLE THREAD GUIDES
are justifiably proud that among leading manufacturers and users of quality yarns our guides have won a distinguished acceptance. Their extra smoothness, hardness and stamina protect the surface or your yarns from harmful abrasion, reduce broken ends and other defects. Why not investigate the "little something extra" in Lambertville Guides today. Available in white, "Durablu" and long wearing homogeneous compositions.

Lambertville Ceramic
AND MANUFACTURING COMPANY
LAMBERTVILLE, NEW JERSEY
LAMBERTVILLE: YOUR GUIDE TO BETTER OPERATIONS!



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FOR SYNTHETIC FIBRES

Precious metal and stainless steel spinerettes with rigidly controlled hardness and grain characteristics available in standard and special design. Orifices from .001" within a tolerance of .0001" in diameter, with as many as 20,000 orifices in a 4" cup face. Surfaces are mirror-like, including walls of finest holes, for maximum protection against corrosion to assure trouble-free production.

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Please send literature as indicated below, addressed to my attention:

☐ Spinnerettes

NAME.....
TITLE.....
FIRM.....
STREET.....
CITY..... ZONE..... STATE.....

100	60	Dull	....	....	1.00	1.00	.92
150	24-40	Bright	1.03	.96	.82	.82	.78
150	40	Semi-Dull	1.03	.96	.82	.82	.78
150	40	Dull	....	....	.82	.82	.78
150	90	Dull	....	....	.83	....	.79
200	10-44	Bright	1.01	.94	.81	.81	.77
250	60	Semi-Dull & Dull	1.00	.93	.80	.80	.77
300	15	Bright	...	.85	.78	.78	....
300	30	Dull Flat Filament	....	....	....	.85	....
300	44	Bright & Dull	.89	.82	.73	.73	.71
300	234	Dull	....	....	.83	....	.81
450	60-100	Bright	....	.78	.69	.71	.67
600	100	Bright & Dull	....	.78	.69	.71	.67
900	50-100-150	Bright	....	.78	.69	.71	.67
1200	75	Bright	....	.78	.69	.71	....
2700	150	Bright	....	.78	.69	.71	....

Extra Turns Per Inch

150	40	Bright	6-Turns	$1.25	$1.15	$ .90	$ .90	$ .88
200	44	Bright	6-Turns	....	1.05	.96	.96	....
300	15	Bright	5-Turns	....	....	.86	.86	....
300	44	Bright	4.3-Turns	....	....	.81	....	.79
300	44	Bright	6-Turns	.97	.90	.86	.86	.84
300	120	Rayflex	6-Turns	....	....	.93	.93	....
600	30	Bright	5-Turns	....	.86	.82	.82	.80

Rayflex Yarns

150	40-60	Rayflex	$	$	$ .85	$ .85	$ .81
200	75	Rayflex	....	....	.84	.84	.80
300	60-120	Rayflex	....	....	.75	.75	.73
450	120	Rayflex	....	....	.71	.71	.69
600	234	Rayflex	....	....	.71	.71	.69
900	350	Rayflex	....	.80	.71	.71	.69

Spun Dyed Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	$1.71
100	Regular Strength	1.35
150	Regular Strength	1.17
200	Regular Strength	1.14
300	Regular Strength	1.09
450	Regular Strength	1.05
600	Regular Strength	1.05
900	Regular Strength	1.05
300	High Strength	1.11
450	High Strength	1.06
900	High Strength	1.06

Avicron Yarns

Avicron Yarns

Denier	Filament		Cones/Tubes Beams/Spools
1800	100-200	Singles & 2 Ply	$.61
2700	150-300-980	Singles & 2 Ply	.58
2700	980	Singles 5 TPI	.61

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams	$170.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.

Celanese Fibers Company

Effective October 12, 1960

Viscose Rayon Filament Yarn Prices—Bright and Dull

Denier/Fil/Twist		Beams	Cones	Cakes
75/30/2Z		1.11		
75/30/3		1.11	1.10	.98
100/40/2Z		.97		
100/40/3		.97	.96	.88
100/40/5			1.02	.95
100/60/2Z	NS	.97	.96	
100/60/3			.98	.90
125/40/2Z		.95		
125/40/3		.95	.94	.87
150/40/0	NS		.74½	
150/40/2Z		.81		
150/40/3		.81	.79½	.76
150/40/5			.90	.86
150/40/8			.95	.91
150/40/10			.98	.94
150/90/0	NS		.77½	
250/60/0	NS		.74	
250/60/3			.80	.77
300/50/0	NS		.70	
300/50/2Z		.72		
300/50/3		.72	.70½	.69
450/60/0	NS	.68	.67	
450/60/3		.70	.69	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U. S. A.

Prices subject to change without notice.
All previous prices withdrawn.
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective December 11, 1960

Bright and Dull

Den.	Fil.	Turns/ Inch Up to		Beams	Cones (A) Tubes	Cakes
40	20	3	Textile "Cordura"*		$1.97	$1.92
50	20	3	Textile "Cordura"		1.72	1.67
50	35	3	Textile "Cordura"		1.77	
75	30	3		$1.14	1.14	1.02
100	40	3	Bright	.98	.98	.90
100	60	3	Dull		1.00	.92
125	50	3		.96	.96	.87
150	40	3		.82	.82	.78
150	60	3	Bright	.82	.82	.78
150	60	3	Textile "Cordura"		.875	.845
150	90	3	Dull		.83	
150	100	3	Dull		.83	
300	50	2.5		.73	.73	.71
300	120	3	Textile "Cordura"	.74	.74	.72
450	72	3		.71	.69	.67
600	96	3	Bright	.71	.69	.67
600	240	3	Textile "Cordura"	.72	.70	
900	50	3	Bright	.71	.69	.67
900	144	3	Bright	.71	.69	.67
2700	150	3	Bright	.71	.69	

Thick and Thin

150	90	3	#7 Bright		1.08	
200	80	3	#7 Bright		1.08	
450	100	3	#7 Bright		.92	
1100	240	3	#60 Bright		1.03	
2200	480	3	#60 Bright		.98	

Plush

300	30	3	Dull	.85		

(A) 2¢/lb. additional for cones less than 3#.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective June 29, 1959

Continuous Process Textile Yarns

Denier	Filament	Turns per In.	Type	Beams	2.8# Cones	4.4# Cones and Tubes
150	40	2.5"S"	Dull	.82	.82	
150	40	2.5"S"	Bright	.82	.82	
200	20	2.5"S"	Bright	.81	.81	
300	44	2.5"S"	Bright	.73	.73	
450	60	2.0"S"	Bright	.69		.69
600	90	1.5"S"	Bright	.69		.69
900	50	2.0"S"	Bright	.69		.69
900	150	2.0"S"	Bright	.69		.69
1100	480	2.0"Z"	Bright extra strong	.66		.66

Lustre #4 is semi-dull.
Prices are subject to change without notice.

Strawn Monofilament

Denier	Filament	Turns per In.	Type	4.4# Cones	Spools and Tubes
450	1	0	Bright and Dull	1.00	1.05
450	1	2	Bright and Dull	1.00	1.05
1250	1	0	Bright and Dull	1.00	1.05
1250	1	2	Bright and Dull	1.00	1.05

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in continental United States except Alaska.

Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Denier/Filament Normal Strength Yarns — NARCO	Twist	Knitting* Cones	No Twist Knitting Cones	Weaving Cones, Velvet Cones, Beams, Tubes**	Untreated Cakes
75/30	3.5			1.14	1.02
75/30	7			1.27	
75/30	12			1.35	
75/30	15			1.37	
75/30	20			1.40	
100/40/60	3.5			.98	.90
100/40	12			1.22	
125/25/60	3			.96	.87
125/52	10			1.13	
150/42	0		.74½		
150/42/60	3	.80½		.82	.78
300/75	0		.71		
300/75	3	.73		.73	.71
900/46	2.5	.69		.69	
1800/92	2.5	.69		.69	

* Oiled Cones $.01 per pound extra for Graded Yarns only.
** 1 lb. Tubes $.02 per pound extra for Graded Yarns only.

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

(Continued from page 62)

Jr., vice president; John W. Hutchinson, vice president and works manager; Thad R. Jackson, assistant treasurer; Russell W. Wade, purchasing agent; Rodney C. Southworth, director research, and Wayne C. Lewison, manager of commercial development. All other officers were reappointed by the directors.

Personnel Notes

Frank Anzivino

Frank Anzivino has been appointed controller of The Kenyon Piece Dyeworks, Inc., succeeding **Eric Lee** who has retired as controller after 14 years but is remaining as auditor.

A. L. Perrin has been appointed manager of the midwest district of Ciba Co., Inc., succeeding **J. Gordon Stott** who has retired after 40 years with Ciba.

J. Carlile Martin has joined Roberts Co. as a special representative in the technical sales service department.

Paul E. Hill has retired as vice president and director of manufacturing of the Fibers Division of American Viscose Corp.

Allen F. Barney has been appointed director of advertising for the Textile, International and Replacement Parts Division of Saco-Lowell Shops.

Harold E. Imes has been named president of Allied Chemical Corp's Semet-Solvay Division. He succeeds **Albert E. Scherm** who has retired after 20 years as president of the division. **Dr. Elwood F. Booth, Jr.**, has been appointed director of research for the corporation's Solvay Process Division.

John S. Flowe has joined the sales organization of the Louis P. Batson Co., for the firm's eastern North Carolina and eastern Virginia territory.

Stephen P. De Mallie has been appointed market analyst for Greenwood Mills, Inc.

John G. Young has been named controller of H. W. Butterworth & Sons Co.

Edward Cranshaw has been appointed manager of sales and service in Draper Corp.'s new Doffer Division.

H. G. Heedy has been appointed product manager for rayon staple fiber by American Enka Corp. **Paul E. Dochety** and **Jack C. Webb** has been named assistant sales managers for rayon industrial yarns; **Sidney M. Smith** has been appointed assistant sales manager for nylon textile yarn, and **J. R. Graham** has been named assistant sales manager for rayon staple.

Conrad G. Hurlimann has joined Geigy Chemical Corp. as vice president and director.

Robert M. Crooks has been appointed director, industrial and community relations, for The Chemstrand Corp.

V. J. Dionne

V. J. Dionne has joined the Fiber Division of Reeves Brothers, Inc., as a sales representative.

William C. Buffing, Jr., has been elected a vice president of National Starch and Chemical Corp.; he will continue to serve as treasurer.

Raymond R. Currier has been named supervisor, textile industry sales, for the chemical division of Pittsburgh Plate Glass Co.

C. E. Sytz has been named general manager of Glenoit Mills, Inc., and will serve as superintendent of the Tarboro, N. C., plant.

George H. Miller has been appointed executive vice president of Scott & Williams, Inc.

(Continued on page 76)

LUBRIPLATE Lubricants actually condition bearing surfaces and stop progressive wear. They prevent rust and corrosion and resist steam, hot water and many acids. They meet all conditions of the Textile Industry. Use LUBRIPLATE and make One Bearing Outlive Two.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

TRIACETATE

Celanese Fibers Company

Current Prices

Arnel Yarn Prices
Bright & Dull

Effective August 19, 1958

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/LTDZ/15	$	$1.20	$ ....
55/2Z/15	1.32	1.33	....
75/LTDZ/20	....	1.16	....
75/2Z/20	1.21	1.22	....
100/2Z/26	1.14	1.15	....
150/2Z/40	.95	.96	....
200/2Z/40	....	....	....
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	....
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—$.02 Additional
Premium for Black Arnel—$.25 Per Pound
Premium for Navy Arnel—$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective February 6, 1961

Industrial Yarn Prices

Prices Subject To Change Without Notice

	Denier/Filament	Standard Beams	Standard Cones
TYREX (ENKA—5000)	1100/720	.57	.595
	1650/1100	.51	.535
	2200/1440	.48	50.5
	3300/2160	.48	50.5
TYREX FABRIC (ENKA—5000)	1100/720	.69	
	1650/1100	.60	
	2200/1440	.57	
	3300/2160	.57	
SUPRENKA M	1230/720	.57	.595
	1600/1100	.53	.555
	1800/1100	.51	.535
	1870/1100	.51	.535
	2200/1440	.48	50.5
	2400/1440	.48	50.5
	3300/2160	.48	50.5
	3650/2160	.48	50.5
SUPRENKA MS	1100/720	.57	.595
	1650/1100	.51	.535
	2200/1440	.48	50.5
	2200/1440 (5.52)	.505	.53
	3300/2160	.48	50.5
SUPRENKA 2000—MECHANICAL AND CHAFER	1100/480	.56	.585
	1230/480	.56	.585
	1650/720	.50	.525
	1820/720	.50	.525
High & Low Elongation	2200/960	.47	49.5
	2400/960	.47	49.5
	3300/2160	.47	49.5
	1130/480 (5.0Z)	.60	.60
SUPRENKA 2000—SEWING YARN	1230/480	.62	.62
	1750/720	.52	.52
	1820/720	.51	.51
HIGH TENACITY	300/40, 300/120	.75	.75
	900/120	.71	.71
REGULAR TENACITY	100/40	.98	.98

American Viscose Corp.

Effective February 9, 1961

Tyrex*
Tyrex* Rayon Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	980	O	.57	.595
1100	980	Z	.57	
1650	1500	O	.51	.535
1650	1500	Z	.51	
2200	1500	O	.48	.505
3300	3000	O	.48	.505

Tyrex* Rayon Tire Fabric

Denier	Filament	Carcass	Top Ply	Breaker
1100	980/2	.69	.69	.69
		Factor Open-525	300-490	115-272
1650	1500/2	.60	.61	.635

Factor—determined by dividing total ends by picks.

* Tyrex—Trademark of Tyrex Inc.

Rayon Tire Yarn
Yarn
High Strength

Denier	Filament	Twist	Unslashed Beams	Unslashed Cones	Slashed Beams	Slashed Cones
1100	490	O	....	....	.56	.585
1150	490	Z	.56	.585	....	....
1650	980	Z	.50	.525	....	....
1650	980	O	....	....	.50	.525
1875	980	Z	.50	.525	....	....
2200	980	O	....	....	.47	.495

Super "Rayflex"

Type 120						
1800	1500	O	....	.535	....	....
4400	3000	O	....	....	.48	.505

Chafer Yarn

1100/490 High Strength 5Z Twist	.60	.60

Adhesive Dipped Yarn or Cord

.06 PREMIUM

Cord on cones in regular Tire Yarn twists same as fabric prices.

Other twist combinations—prices quoted on request.

Special packages take premiums indicated:

4.0 oz. Wardwell Tubes	.20
10.5 oz. Wardwell Tubes	.10
1.5 lb. Regular Braider Tubes	.06
3.5 lb. Tubes	.045

Single Yarn—Based on cone price.

Plied Yarn—Based on fabric price.

All yarns sold "Not guaranteed for dyeing"

The following deposit charges are made on invoices:

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition freight collect.

Rayon Tire Yarn and Fabric

Terms: Net 30 days. Seller to select and to pay transportation charges of common and contract carrier except when shipment moves West of the Mississippi River, in which event the actual cost of transportation to the Mississippi River crossing based on the lowest published freight rate, shall be allowed. Title to pass when merchandise is delivered to consignee. Transportation allowance based on lowest published volume rate shall be granted if merchandise is transported from shipping point in vehicle owned or leased and operated by buyer and title to pass when merchandise is delivered to same.

Price subject to change without notice.

Inferior Yarns—Designated HS-SR	.06 Below First Quality Price
Skein Yarn	.04 Above First Quality Price
Adding 6 Turns to "O" Twist Yarn	.05

"Avisco" Industrial Sewing Thread

Effective March 1, 1961

Denier	Filament	Description	Twist	Package	Price
1100	980	Super "Rayflex" 120	O	9 lb. cone	.64
1100	980	Super "Rayflex" 120	2Z	4 lb. cone	.64
1500	980	Super "Rayflex" 120	O	9 lb. cone	.59
1500	980	Super "Rayflex" 120	2Z	4 lb. cone	.59
1780	1500	Super "Rayflex" 120	O	9 lb. cone	.55
1780	1500	Super "Rayflex" 120	2Z	4 lb. cone	.55

Domestic freight prepaid.

Prices subject to change without notice.

Celanese Fibers Company

Effective December 27, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Fortisan-36 Rayon Yarn
Bright

Denier and Filament	Twist	¼# cones	⅛# cones	Tubes	Beams
270/280	0.8Z	$2.30			
300/280	0.8Z	$2.05			
300/280	3Z	$2.20			
400/400	0.8Z	$1.75			$1.70
400/400	0			$1.75	
800/800	0.8Z	$1.25	$1.25		$1.20
800/800	3Z	$1.40			
800/800	0			$1.25	
1600/1600	0.8Z	$1.15	$1.15		$1.10
1600/1600	2½Z	$1.30			
1600/1600	0			$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices Effective March 29, 1961

"Super Cordura"*

Den Fil	Turns/In	Beams	Cones
1100-720	2	.57	.595
1200-720	2		.595
1530-960	2		.570
1600-960	2		.555
1650-1100	2	.51	.535
1800-1100	2	.51	.535
2200-1440	2	.48	.505
2400-1440	2	.48	.505

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

DARY
Dary RING TRAVELERS . . .
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THE DARY RING TRAVELER CO.
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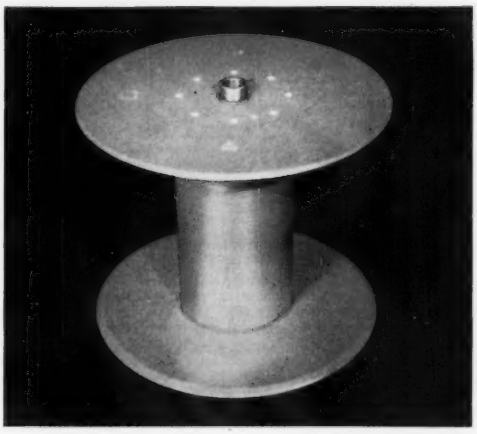
NO YARN TRAPPING WITH BRAZED ALUMINUM TWO POUND TAKE-UP BOBBIN



New aluminum take-up bobbin with barrel and heads brazed together into a single unit prevents yarn trapping. Exceptional strength at price no higher than ordinary bobbins.

Write us today for full details.

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ALLENTOWN PENNSYLVANIA

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Industrial Rayon Corporation

Effective February 13, 1961

Unbleached Bright High Tenacity Yarns

Single End Beams and Cones—Type 100

Denier	Filament	Turns per Inch	Cones	Beams
1100	720	3.0 "Z"	.585	.56
1150	720	3.0 "Z"	.585	.56
1650	1100	3.0 "Z"	.525	.50
1700	1100	3.0 "Z"	.525	.50
2200	1440	3.0 "Z"	.495	.47
3300	2200	3.0 "Z"	.495	.47

Tyrex

Tyrex Certified Viscose Tire Yarn

Denier	Filament	Twist	Cones	Beams
1100	720	Z	.595	.57
1650	1100	Z	.535	.51
2200	1440	Z	.505	.48
3300	2200	Z	.505	.48

Terms: Net 30 days f.o.b. point of shipment, title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points in continental United States except Alaska.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

North American Rayon Corporation

Current Prices

Super Super High Strength Continuous Yarn Type 710		Cones	Beams
1100/720	1.6Z	.57	.57
1650/720/1100	2.0Z	.51	.51

Tire Cord Fabrics Super Super High Strength Type 710	Rolls
1100/720	.69
1650/720	.60

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.

Prices are subject to change without notice.

CELLULOSIC STAPLE & TOW

ACETATE

Celanese Fibers Company

Effective March 2, 1959

Staple

(Most Deniers Available in Bright or Dull Luster)

Celanese Acetate Staple	
3, 5.5 & 8 Denier (Regular Crimp, Type HC, Type D)	$.36
2, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	.37
35 Denier	.38
50 Denier	.40
Type F—5.5 & 8 Denier	.35
Type F—12 & 17 Denier	.36
Type K—(Available under Celanese License Agreement)	.39
⅝" to ⅞" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.29*

Tow (Celatow)

3, 5.5 & 8 Denier	$.37
2, 12 & 17 Denier	.38
35 Denier	.40
35 Denier Flat Filament Acetate Tow	.42
50 Denier	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point.)

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

RAYON

American Viscose Corp.

Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .28
"Viscose 22"	.28
1.25 Denier	.31
All Other Deniers	.28
Hi-Crimp	.28
Bleached Crimp	
1.5, 3.0 Denier	.315
Smooth	
8.0 & 15.0 Denier Smooth	.30
22.0 Denier	.32
Bleached	.33
Extra Strength	
0.75 Denier	.40
1.0 Denier	.35
XL	
1.0 Denier	.40
1.5, 3.0 Denier	.37
XLI	.34
Fiber 40	
1.0 Denier	.43
1.5 Denier	.40

Spun Dyed Black Staple

1.5, 3.0, 5.5 Denier	.37
15.0 Denier crimped	.40

Prices of other colors on request.

Tow

1.5, 3.0, 5.5 Denier	.38
9.0 Denier	.37
15.0, 20.0 Denier	.38
Color spun black tow	.42

Terms: Net 30 days.

American Enka Corp.

Current Prices Effective April 1, 1960

Rayon Staple

Regular Crimp

	Brt.	Dull
1.5 and 3 denier	$ .28	$ .28

High Crimp

4.5 denier	.28	....
6.5 denier	.28	.28
8 denier	.28	....
15 denier	.28	.28

Celanese Fibers Company

Effective May 1, 1959

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F. Total denier 200,000	.35
8 D.P.F. Total denier 207,000	.37

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

Rayon Staple

	Bright	Dull
Regular Rayon Staple Fiber	$.28	$.28

Crimped Rayon Staple

High Crimped Rayon Staple Fiber	$.28	$.28

Coloray® Solution Dyed Rayon Staple

Color	Price per lb.
Black	$.35
Oyster	$.36
Silver Grey	$.41
Mocha	$.41
Tan	$.41
Medium Brown	$.41
Pumpkin	$.41
Aqua	$.42
Rose	$.42
Dawn Pink	$.42
Ecru	$.42
Dark Brown	$.42
Gold	$.45
Lilac	$.45
Slate Grey	$.45
Sulphur	$.46
Nugget	$.46
Light Blue	$.46
Crystal Blue	$.47
Apple Green	$.47
Sage	$.47
Peacock Blue	$.48
Medium Blue	$.50
Indian Yellow	$.51
Dark Blue	$.51
Hunter Green	$.51
Turquoise	$.52
Malachite Green	$.53
Red	$.58

In addition to the above, Black is also available in:

1½ den. 1⅛"	5½ den. 3"
3 den. 1⅛"	5½ den. 6"
3 den. 1-9/16"	

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

Corval® Cross Linked Rayon

Man-made, cross-linked, regular or crimped cellulosic staple, semi-dull and dull ..... $.37 per lb.

Topel® Cross-Linked Rayon

Man-made, cross-linked, cellulosic staple, semi-dull and dull ..... $.37 per lb

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Fibres Co.

Div. Bigelow-Sanford, Inc.

Rayon Staple

Effective October 20, 1960

Regular

1.5 & 3.0 denier Bright & Dull, 1-9/16", 2" .28

White (Crimped)

8 denier 3" Bright	.28
15 denier 3" Bright	.28
15 denier 3" Dull	.28

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	.39	.39	....
Sandalwood	.39	.39	....
Nutria	.39	.39	....
Sea Green	.39	.39	....
Mint Green	.39	.39	....
Champagne	.39	.39	....
Midnight Black	.39	....	.39
Gold	.39	.39	....

Turquoise	.39	.39	....
Melon	.39	.39	....
Capri Blue	.39	.39	....
Charcoal Grey	.39	.39	....
Coco	.39	.39	....
Sable	.39	....	.39
Tangerine	.59	....	.59
Chinese Red	.59	....	.59
Larkspur Blue	.39	.39	....
Royal Blue	.59	....	.59
Lemon Peel	.48	.48	....
Kelly Green	.45	.45	....
Bitter Green	.59	....	.59
Brazil	....	.39	....
Redwood	....	....	.39
Frost Green	....	.39	....
Mist Grey	....	.39	....
Medium Brown	....	.39	....
Dark Brown	....	....	.39
Woodtone	....	.39	....
Antique Gold	....	.39	....
Light Turquoise	....	.39	....
Hunter Green	....	.39	....

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

"Zantrel Polynosic" Rayon

Effective August 14, 1959

Man-made, cellulosic staple.

Semi-Bright, 1 denier, 1 916/"	$.45 per lb.
1½ denier, 1¼" and 1 9/16"	.42 per lb.
3 denier, 1 9/16" and 2"	.42 per lb.

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	
1, 1.5 & 2.3 deniers	.40
No. 2 (Preshrunk)	
1, 1.5 & 3 deniers	.40

Rayon Tow

High Tenacity	
2200/960	.52
2200/2000	.525
4400/2000	.475
4400/2934	.475
6000/2934	.425

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

TRIACETATE

Celanese Fibers Company

Current Prices Effective June 7, 1957

(Most Deniers Available in Bright or Dull Luster)

Arnel Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier 114,000 Total Denier	$.60
5.0 Individual Denier 90,000 Total Denier or 180,000 Total Denier	.60

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®

Current Yarn Prices: Effective May 1, 1960

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
140	16	1½	Z	B	Cones*	$1.60
140	16	1½	Z	B	Beams	1.65
200	16	1½	Z	B	Cones*	1.49
200	16	1½	Z	B	Beams	1.54
200	32	¾	Z	B	Bobbins	1.49
200	32	¾	Z	B	Beams	1.54
210	32	1	Z	HB	Bobbins	1.49
260	16	1	Z	HB	Bobbins	1.49
420	64	½	Z	HBT	Bobbins	1.39
420	64	½	Z	HBT	Beams	1.44
520	32	1	Z	B	Bobbins	1.39
520	32	1	Z	B	Beams	1.44
840	136	½	Z	HBT	Al. Tubes	0.94
840	136	½	Z	HBT	Beams	0.92
1680	272	½	Z	HBT	Al. Tubes	0.94
1680	272	½	Z	HBT	Beams	0.92
1050	56	½	Z	B	Al. Tubes	1.15
2100	112	½	Z	B	Al. Tubes	1.11
4200	224	0	O	B	Paper Tubes*	1.10
2100	408	0	O	HB	Paper Tubes*	0.97
2500	408	0	O	HB	Paper Tubes*	0.97
3360	544	0	O	HB	Paper Tubes*	0.96
4200	680	0	O	HB	Paper Tubes*	0.96
5000	816	0	O	HB	Paper Tubes*	0.96
5800	952	0	O	HB	Paper Tubes*	0.96
7500	1224	0	O	HB	Paper Tubes*	0.95
10000	1632	0	O	HB	Paper Tubes*	0.95
15000	2448	0	O	HB	Paper Tubes*	0.95

Terms—Net 30 days.

Price subject to change without notice.

Bobbins are invoiced at 45¢ ea.

Aluminum Tubes are invoiced at 40c ea.

Beams are invoiced at $220.00.

Cradles for beams are invoiced at $53.00.

B—Bright
H—High Tenacity
T—Heat Stabilized

* Paper Tubes and Cones non-returnable, no charge.

** Type is used to describe luster and tenacity.

All prices quoted F.O.B. Shipping Point.

Minimum transportation charges allowed and prepaid in Continental United States, excluding Alaska.

American Enka Corporation

Enka Nylon Prices

Effective March 21, 1961

Denier/Mono Filament	Luster	Twist	Package	Price Per Pound Standard	Price Per Pound Substandard
15/1	SD or D	0.5Z	Pirns	3.89	3.69
15/1	SD or D	0.5Z	Spools	4.00	....
20/1	SD	0.5Z	Pirns	3.53	3.30
20/6	SD	0.5Z	Pirns	2.91	2.61
20/6	SD	0.5Z	Spools	3.02	....
20/6	Dull	0.5Z	Pirns	2.96	2.61
20/6	Dull	0.5Z	Spools	3.07	....
30/1	SD	0.5Z	Pirns	4.13	3.93
30/6	SD	0.5Z	Pirns	2.36	2.21
30/6	SD	0.5Z	Spools	2.46	....
40/8-13	SD	0.5Z	Pirns	2.01	1.91
40/8-13	SD	0.5Z	Spools	2.11	....
40/8	SD-B de B*	0.5Z	Pirns	2.10	2.00
40/13	Dull	0.5Z	Pirns	2.06	1.96
40/13	Dull	0.5Z	Spools	2.16	....
50/13	SD	0.5Z	Pirns	1.91	1.76
50/13	SD	0.5Z	Spools	2.01	....
50/13	SD-B de B*	0.5Z	Pirns	2.00	1.85
50/13	SD-B de B*	0.5Z	Spools	2.10	....
70/16-32	B or SD	0.5Z	Pirns	1.71	1.66
70/32	SD-B de B*	0.5Z	Pirns	1.80	1.75
100/32	SD	0.5Z	Pirns	1.65	1.60
100/32	SD-B de B*	0.5Z	Pirns	1.74	1.69
140/24	Bright	1.5Z	Cones	1.60	1.55
140/24	Bright	1.5Z	Beams	1.65	....
140/32-64	SD	0.5Z	Pirns	1.60	1.55
140/32-64	SD-B de B*	0.5Z	Pirns	1.69	1.64
200/16-32	Bright	0.5Z	Cones	1.49	1.44
200/16-32	Bright	0.5Z	Beams	1.54	....
200/16-32	Bright	1.5Z	Cones	1.49	1.44
200/16-32	Bright	1.5Z	Beams	1.54	....
200/32	SD-B de B*	0.5Z	Cones	1.58	1.53
200/16-32	Bright	0.5Z	Cones	1.49	1.39
400/64	Bright	0.5Z	Cones	1.39	1.29
520/32	Bright	0.5Z	Cones	1.39	1.29
1040/68 Enkatron**	SD	0.5Z	Cones	1.30	1.20
1230/68 Enkatron**	SD	0.5Z	Cones	1.30	1.20
840/140	BHT	0.5Z	Cones	.94	.92
840/140	BHT	0.5Z	Beams	.92	....

* Blanc de Blancs = Enka Trademark White of Whites.

** Enkatron = Enka Trademark Multilobal Yarns.

*Luster: B—Bright; H—High Tenacity; T—Heat Stabilized; SD—Semi-Dull; D—Dull; *SD-B de B.

Pirns invoiced at 25¢ or 45¢ each, depending on type. Deposits refunded upon return of pirns in good condition. Cones are not returnable. Spools, Beams and Racks are deposit carriers and remain the property of American Enka Corporation.

Terms: Net 30 days from date of invoice. Minimum common carrier transportation charges will be prepaid and absorbed to first destination in the continental limits of the United States excluding Alaska and Hawaii. In prepaying transportation charges, seller reserves the right to select carrier used.

All prices subject to change without notice.

*B de B—Blanc de Blancs®—White of Whites Color.

The Chemstrand Corp.

Current Prices Effective January 1, 1960

	Denier	Filament	Twist	Type	Package	Standard Price/lb.	Second Price/lb.
	10	1	O	SD	Bobbins	$7.16	$6.56
*	15	1	O	RSD	Bobbins	3.89	3.69
	15	1	O	RSD	Spools	4.00	....
	15	1	O	Dull	Bobbins	3.89	3.69
	15	1	O	Dull	Spools	4.00	....
	20	7	Z	RSD	Bobbins	2.91	2.61
	20	7	Z	RSD	Spools	3.02	....
*	30	10	Z	RSD	Bobbins	2.36	2.21
*	30	26	Z	RSD	Bobbins	2.49	2.21
*	40	10	Z	RSD	Bobbins	2.01	1.91
*	40	13	Z	RSD	Bobbins	2.01	1.91
	40	13	Z	RSD	Spools	2.11	....
	40	13	O	RSD	Draw Wind	2.01	1.91
*	40	13	Z	Dull	Bobbins	2.06	1.96
	40	13	Z	Dull	Spools	2.16	....
	40	13	O	Dull	Draw Wind	2.06	1.96
*	50	17	Z	RSD	Bobbins	1.91	1.76
	50	17	O	RSD	Draw Wind	1.91	1.76
*	50	17	Z	Brt.	Bobbins	1.91	1.76
	70	17		RSD	Bobbins	1.71	1.66
*	70	20	Z	RSD	Bobbins	1.71	1.66
*	70	34	Z	RSD & SD	Bobbins	1.71	1.66
	70	34	O	RSD & SD	Draw Wind	1.71	1.66
	70	34	Z	Brt.	Bobbins	1.71	1.66
	70	34	O	Brt.	Draw Wind	1.71	1.66
	70	34	Z	HB	Bobbins	1.76	1.66
	70	34	O	HB	Bobbins	1.76	1.66
	70	34		RB	Bobbins	1.71	....
	90	26	Z	RSD	Draw Wind	1.76	1.66
	100	26	Z	RSD	Bobbins	1.65	1.60
	100	34	Z	RSD	Bobbins	1.65	1.60

100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	Brt.	Bobbins	1.60	1.55
* 200	34	Z	Brt.	Bobbins	1.49	1.44
200	34	O	Brt.	Draw Wind	1.49	1.44
200	34	Z	Brt.	Spools	1.54	....
* 200	68	Z	RSD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.49	1.44
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Beams	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
420			RHB	Bobbins	1.39	1.29
520	34	Z	HB	Bobbins	1.39	1.29
720	140	Z	RHB	Beams	.99	....
780	51	Z	HB	Tubes	1.39	1.29
840	140	Z	HB	Tubes	.94	.92
840	140	Z	HB	Beams	.92	.90
840	140	Z	HB	Cones	.95	.93
840	140	Z	RHB	Tubes	.94	.92
840	140	Z	RHB	Beams	.92	.90
840	140	Z	RHB	Cones	.95	.93
840	140	Z	HB	Paper Tubes	.94	.92
840	140	Z	RHB	Paper Tubes	.94	.92
840	140	Z	RHB	Textile Grade—W.W.	1.06	.92
840	140	Z	HB & RHB	Raschel Spools	1.00	....
1050	170		RHB	Tubes	.94	.92
1680	280	Z	RHB	Tubes	.94	.90
1680	280	Z	RHB	Beams	.92	....
1680	280	Z	RHB	Cones	.95	.91
1680				Spools	.99	.91

Cumuloft®

520	34	Z	RB	Tubes	2.05	....
1040	68	Z	RB	Tubes	1.74	....
1230	68	Z	RSD	Paper Tubes	1.53	....
2080	136	Z	RB	Tubes	1.66	....
3690	204	S	RSD	Cones	1.47	....

Cadon™

15	1	O	Brt.	Bobbins	4.90	4.70
15	1	O	Brt.	Spools	5.01	....
70	34	Z	RSD	Bobbins	1.81	....
200	34	Z	RB	Bobbins	1.54	....
520	34	Z	RB	Bobbins	1.44	1.34
1040	68	Z	RB & RSD	Tubes	1.30	1.20
1230	68	Z	RSD	Tubes	1.30	1.20
2080	136	Z	RB	Tubes	1.26	....

* These counts also available in Warp Wind package at price shown for Bobbins.

Types: D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $95.00, $110.00, and $115.00, depending on type; and beams and crates for beams are invoiced at $220.00 and $25.00 respectively.

Prices subject to changes without notice.

Freight prepaid within Continental United States and Puerto Rico.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
7-1	0	200	Bobbin	$8.05	$7.40
10-1	0	200	Bobbin	7.16	6.56
12-1	0	200	Bobbin	6.35	5.85
15-1	0	90	Bobbin	4.90	....
15-1	0	90	Beams	5.01	....
15-1	0	200	Beam	4.00	....
15-1	0	200/280	Bobbin	3.89	3.69
15-1	0	680	Beam	4.00	....
15-1	0	680	Bobbin	3.89	3.69
30-1	0	....	Bobbin	4.13	....
20-1	0	200/280	Bobbin	4.03	3.68
14-2	0.2Z	200	Bobbin	6.72	6.12
17-2	0.2Z	200	Bobbin	5.96	5.41
20-2	0.2Z	200	Bobbin	4.71	4.27
15-3	0.2Z	200	Bobbin	5.19	4.69
21-3	0.2Z	200	Bobbin	4.70	4.27
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Beam	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Beam	3.07	....
20-20	0.7Z	209	Bobbin	6.00	....
28-4	0.2Z	200	Bobbin	2.81	2.61
30-10	0.5Z	200	Bobbin	2.36	2.21
30-10	0.5Z	200	Tricot Bms	2.46	....
30-10	0.5Z	300	Bobbin	2.51	2.36
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Tricot Bms.	2.51	....
30-26	0.5Z	200/280	Bobbin	2.49	2.21
30-26	0.5Z	200/280	Tricot Beams	2.59	....
40-7	0.5Z	200	Bobbin	2.11	1.91
40-10	0.5Z	200/280	Bobbin	2.01	1.91
40-10	0.5Z	200	Tricot Beams	2.11	....
40-13	0.5Z	200	Bobbin	2.01	1.91
40-13	0.5Z	200	Tricot Bms.	2.11	....
40-13	0.5Z	400	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Tricot Bms.	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200	Bobbins	2.11	1.76
50-17	0.5Z	100/200	Bobbin	1.91	1.76
50-17	0	200	Tubes	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
60-34	0.5Z	300	Bobbin	1.86	1.76
60-20	0.5Z	200/280/288	Bobbin	1.82	1.65
70-17	0.5Z	200/288	Bobbin	1.71	1.66
70-34	0	100	Tubes	1.71	1.66
70-34	0.5Z	100/200/180	Bobbin	1.71	1.66
70-34	0	105/205	Paper Tube	1.71	1.66
70-34	0	200/285	Tubes	1.71	1.66
70-34	0.5Z	91	Bobbin	1.80	1.75
70-34	0.5Z	280	Bobbin	1.71	1.66
70-34	0.5Z	288	Bobbin	1.71	1.66
70-34	0.5Z	300	Bobbin	1.76	1.66
70-34	0.5Z	680	Bobbin	1.76	1.66
70-34	0	680	Tubes	1.76	1.66
80-26	0.5Z	200	Bobbin	1.71	1.60
90-26	0.5Z	200/288	Bobbin	1.76	1.66
100-34	0.5Z	200/288	Bobbin	1.65	1.60
100-34	0.5Z	300	Bobbin	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.5Z	680	Bobbin	1.70	1.60
100-50	0.5Z	200/288	Bobbin	1.71	1.60
110-50	0.5Z	200	Bobbin	1.71	1.60
140-34	0.5Z	680	Bobbin	1.65	1.60
140-68	0.5Z	91	Bobbin	1.69	1.64
140-68	0.5Z	680	Bobbin	1.65	1.60
140-68	0.5Z	100	Bobbins	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.5Z	200/288	Bobbin	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
200-20	1Z	100	Bobbin	1.49	1.44
200-34	0	100	Tubes	1.49	1.44
200-34	0.7Z	100	Bobbin	1.49	1.44
200-34	0	105	Tube	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	100/200	Bobbin	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.7Z	300	Bobbin	1.49	1.44
210-34	0.7Z	300	Beam	1.54	....
210-34	0	305	Tube	1.49	1.44
210-34	0.7Z	330	Bobbin	1.49	1.44
260-17	1Z	300/380	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
420-68	1Z	300	Beams	1.44	....
520-34	1Z	300/380	Bobbin	1.39	1.29
630-102	0.7Z	300	Bobbin	1.39	1.29
780-51	1Z	300/380	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-136	1Z	300	Bobbins	1.34	1.24

Nylon Filament "Antron"* Yarn Prices

20-7	0.5Z	560 Brt.	Bobbin	3.06	2.76
20-7	0.5Z	560 S.D.	Bobbin	3.06	2.76
30-10	0.5Z	560 S.D.	Bobbin	2.46	2.31
40-13	0.5Z	560 Dull	Bobbin	2.16	2.06
40-13	0.5Z	560 S.D.	Bobbin	2.11	2.01
50-17	0.5Z	560 S.D.	Bobbin	2.01	1.86
70-34	0	565 S.D.	Paper Tube	1.81	1.76
70-34	0.5Z	560 S.D.	Bobbin	1.81	1.76
70-34	0	560 S.D.	DW Tube	1.81	1.76
200-20	0.7Z	560 Brt.	Bobbin	1.54	1.49
200-34	0.7Z	560 S.D.	Bobbin	1.54	1.49
200-34	0	565 S.D.	Paper Tube	1.54	1.49
520-34	1Z	560 Brt.	Bobbin	1.44	1.34
780-51	1Z	560 Brt.	Bobbin	1.44	1.34

* Antron is DuPont's registered trademark for its trilobal multi-filament nylon yarn.

Color-Sealed Black Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.16
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
200-20	0.7Z	140	Bobbin	1.84	1.79
200-34	0.7Z	140	Bobbin	1.84	1.79
260-20	1Z	140	Bobbin	1.84	1.79

INDUSTRIAL YARNS

Tire Quality

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
840-140	0.5Z	300/700	Aluminum Tube	$.94	$.92
840-140	0.5Z	300/700	Beam	.92	....
840-140	0.5Z	300/700	Raschel Beam	1.00	....
1680-280	0.5Z	700	Cone, Paper Tube	.95	.92
1260-210	0.5Z	700	Beam	.92	....
1680-280	0.5Z	700	Aluminum Tube	.94	.92
1680-280	0.5Z	700	Beam	.92	....
840-140	0.5Z	300/700	Cone, Paper Tube	.95	.92

Industrial Quality

840-140	0.5Z	707	Cone, Pape Tube	.95	
2520-420	0	700	Paper Tube	.97	
3360-560	0	700	Paper Tube	.96	
5040-840	0	707	Paper Tube	.99	
5040-840	0	700	Paper Tube	.96	
7560-1260	0	707	Paper Tube	.98	
7560-1260	0	700	Paper Tube	.95	
10080-1680	0	707	Paper Tube	.98	
15120-2520	0	707	Paper Tube	.98	

These prices are subject to change without notice. Terms: Net 30 Days

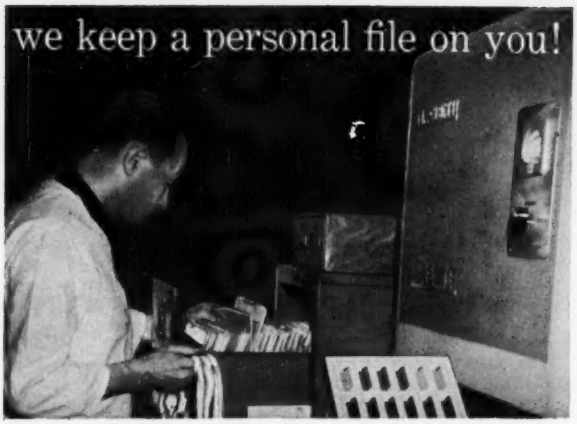
Types

Type 90—Bright, normal tenacity, trilobal—cross section.
Type 91—Semidull, super white, normal tenacity, for intimate apparel use only.
Type 100—Bright, normal tenacity.
Type 105—Bright, normal tenacity, low shrinkage (5-7%)
Type 140—Bright, color-sealed, black, normal tenacity.
Type 200—Semidull, normal tenacity.
Type 205—Semidull, normal tenacity, low shrinkage (5-7%)
Type 209—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 280—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 285—Semidull, normal tenacity, low shrinkage, improved light durability, and dye light fastness.
Type 288—Semidull, normal tenacity, for Texturing.
Type 300—Bright, high tenacity.
Type 305—Bright, high tenacity, low shrinkage (5-7%)
Type 330—Bright, high tenacity, more heat & light resistant.
Type 380—Bright high tenacity, improved light durability and dye light fastness.
Type 400—Semidull, high tenacity.
Type 560—Luster as designated—Modified cross section. Improved light durability and dye light fastness.
Type 565—Luster as designated—Modified cross section, low shrinkage. Improved light durability and dye light fastness.
Type 680—Dull, normal tenacity.
Type 700—Bright, high tenacity.
Type 707—Bright, high tenacity cordage yarn.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Following are invoiced as a separate item.

Bobbins—25 cents or 45 cents depending on type



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Any degree of color fastness. Packaged as desired.
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Yarn Corporation

125 WEST 41st ST., NEW YORK 36, LONGACRE 3-4200
PLANT: 86 CRARY ST., PROVIDENCE, R. I.

Yarn Friction Problems Analyzed

All factors which affect the frictional behavior of fibers in textile manufacturing operations must be considered in evaluating a finish ingredient or a new finish formulation. This point was made by Harry J. Demas, head of Fiber Finish Development for Allied Chemical's National Aniline Division, before the Spring Meeting of the Fiber Society at Athens, Ga., April 28. Demas presented the paper, "Frictional Studies on Caprolan Filament Yarn," which he co-authored with Carl Schlatter, Consultant.

Some finish formulations give essentially the same friction at any application level and under all test conditions, while others vary greatly with the amount of finish present, according to Demas. Friction may increase or decrease with finish viscosity, depending on test conditions. Demas pointed out that this behavior confirms previous findings that different friction mechanisms operate under different test conditions.

The paper described how the friction of Caprolan yarn with a commercial finish is affected by yarn speed, diameter of friction pins, surface contours of pins, and angle of contact with the pin. Results are explained on the basis of hydrodynamic lubrication between yarn and pins. Schlatter showed how this concept explains the enormous effect of surface smoothness on friction, as well as the effect of pin diameter and contact angle.

With the hydrodynamic lubrication concept, he told why the viscosity-temperature relationship of the lubricant is a big factor in shaping the friction-versus-speed curve of textile yarns.

Stockholders Approve Merger of Industrial Rayon with Midland-Ross

Merger of Industrial Rayon Corp. into Midland-Ross Corp. was approved by the shareholders of both companies at separate meetings in Cleveland recently. In a joint statement, Wade N. Harris, president of Midland-Ross, and Frederick L. Bissinger, president of Industrial Rayon, said they are highly gratified by the approval of the merger and expressed their confidence that shareholders of both corporations would benefit materially from the combining of the operations and assets of the two companies. Bissinger will become a group vice-president of Midland-Ross and will continue to direct the activities of the rayon company.

Terms of the merger agreement provide that each of the 1,851,255 common shares of Industrial Rayon stock will be converted into two-fifths of a share of Midland-Ross common stock, bringing the total number of Midland-Ross common shares outstanding to 1,422,527.

Following the merger vote, Harris told Midland-Ross shareholders that net income of the company in the first three months of this year was $606,734, or 61¢ a common share. Earnings in the first quarter of 1960 were $1,254,221, or $1.56 a share. He said results for the first quarter of 1961 reflected the generally unsettled conditions of the economy during this period, which affected the operations of Midland's capital goods and automotive divisions. He pointed out, however, that orders received by the capital goods divisions in the first quarter of this year exceeded billings and that the company is actively bidding on new projects from which additional new business is expected as the year progresses.

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Malina
COMPANY

125 WEST 41st STREET, NEW YORK 36, LOngacre 3-4200

Aluminum Tube—40¢ each
Draw Winder Tubes—$1.00
Industrial & Section Beams—$220.00 each
Racks for Industrial & Section Beams—$50.00 each
Tricot Beams—$95.00 or $250.00 each depending upon type
Racks for Tricot Beams—$70.00 or $130.00 each depending upon type
Raschel Beams—$85.00 or $100.00 each depending upon type
Racks for Raschel Beams—$70.00 each
Tricot and Raschel Beams are billed at the above prices if not returned within 90 days from date of invoice.
Section Beams are billed after 60 days, and Industrial Beams are billed after 60 days.
(Beams and Racks are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Package	Tubes 1st Gr.
30-14	0	Bright	55	Tube	$2.60
30-20	0	Semidull	56	Tube	2.60
40-27	0	Semidull	56	Tube	2.35
40-27	0	Bright	55	Tube	2.35
40-27	0	Dull	57	Tube	2.40
70-34	0	Semidull	56	Tube	1.97
70-14	0	Bright	55	Tube	1.97
70-34	0	Bright	55	Tube	1.97
70-34	0	Dull	57	Tube	2.02
100-34	0	Semidull	56	Tube	1.90
140-28	0	Bright	55	Tube	1.85
150-34	0	Semidull	56	Tube	1.85
220-50	0	Bright	51	Tube	1.76
250-50	0	Bright	55	Tube	1.76
1100-250	0	Bright	51	Core	1.50
1100-250	0	Bright	52	Core	1.50
1100-250	Ro2	Bright	52	Core	1.50
1100-250	Ro2	Bright	52	Beam	1.50

Terms: Net 30 days.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the Continental limits of the U. S., excluding Alaska.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 52—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.

Tubes are invoiced as a separate item at $.70 each.
Industrial beams and cradles are billed if not returned within 60 days from date of invoice. They are then billed as separate items at $220.00 per beam and $50.00 per cradle and are returnable for credit.
*"DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN

The National Plastics Products Company—Fibers Division Odenton, Maryland

Current Prices:
CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.
F.O.B. Odenton, Maryland.
Terms: Net 30 days

NON CELLULOSIC STAPLE & TOW ACRYLIC

American Cyanamid Co. Fibers Division

Effective Date: December 21, 1960

Cyanamid Acrylic Staple

	1st Grade Price (per pound)
2.0 Denier Bright and Semi-Dull	$1.28
3.0 Denier Bright and Semi-Dull	1.22
5.0 Denier Bright and Semi-Dull	1.22
15.0 Denier Bright and Semi-Dull	.95

Staple Lengths: 1½", 2" 2½", 3", 3½", 4", 4½".
Type WM—Designed for the woolen spinning system and is a blend of deniers (average 4) and length .94
Type BC—Designed for blending with cellulosics and is 2 or 3 denier 1½" semi-dull regular staple 1.08
Information provided on request for Deniers, Lengths and Lusters not listed above.
Prices are subject to change without notice.
Terms: Net 30 Days.
F.O.B. Shipping Point—Minimum transportation allowed (Seller's route and method) within the continental limits of the United States excluding Alaska. If Buyer requests and Seller agrees to a route or method involving higher than minimum rate, Buyer shall pay the excess transportation cost.
Note: CRESLAN® is Cyanamid's registered trademark for certain of its acrylic fibers. Use of this trademark is authorized only on properly constructed fabrics, after they have been tested and approved by Cyanamid.

The Chemstrand Corp.

"Acrilan"*

Current Prices Effective January 1, 2961

Denier	Type	Regular Acrilan "A" Qual.	Regular Acrilan 2nd Qual.	Acrilan 16 "A" Qual.	Acrilan 16 2nd Qual.
1.0	Staple	$	$	$1.28	$ ....
2.0	Staple	1.22	1.03	1.22	1.03
2.0	Tow	1.22	1.03	1.22	1.03
2.5	Hi-Bulk Staple	1.22	1.03	1.22	1.03
2.5	Hi-Bulk Tow	1.22	1.03	1.22	1.03
3.0	Staple	1.22	1.03	1.22	1.03
3.0	Tow	1.22	1.03	1.22	1.03
5.0	Staple	1.22	1.03	1.22	1.03
5.0	Tow	1.22	1.03	1.22	1.03
8.0	Staple	1.18	1.03	1.18	1.03
8.0	Tow	1.18	1.03	1.18	1.03
15.0	Staple	.95	....	.95	....
15.0	Tow	.95	....	.95	....

Staple and Tow available in Bright and Semi-Dull lusters.

Acrilan Spectran™

		Dark	Light
2.5	Staple	1.39	1.29
3.0	Staple	1.39	1.29
3.0	Tow	1.44	1.34

Acrilan Spectran—Staple and Tow available in Bright lusters only.
Dark—Black, Dark Blue, Brown, Dark Grey and Olive.
Light—Taupe, Gold, Beige and Light Grey.

Fiberfill	....	....	1.01	....
Types 77, 88 and 89 Staple	....	....	.97	....

TERMS: Net 30 Days.
F.O.B. shipping point, freight prepaid: seller to select and pay transportation charges of carrier to points within the continental limits of the United States, excluding Alaska.
* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department Current Prices

"Zefran"* Acrylic Staple

2.0 denier Semidull & Bright—Staple only	$1.28
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.18
100% Blends of ZEFRAN acrylic fiber (For the Woolen System)	
Type W-2 (average denier of about 2.5)	$.99
Type W-4 (average denier of about 4.5)	.94

Terms: Net 30 days.
Transportation Terms: F.O.B. shipping point—Freight prepaid our route within the continental limits of the U. S., excluding Alaska.
* Registered trademark of The Dow Chemical Co.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Orlon"* Acrylic Staple & Tow

Type 42	Staple Length	Tow Blds.	1st Grade
2.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.30
3.0 Denier Color-sealed Black	1¼, 1½, 2, 2½, 3, 4½	470M	1.63
6.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.20
6.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55
4.5 Denier Semidull	1½, 1¾, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55

High Shrinkage Staple price as Regular Staple

Type 38 Semidull & Bright $1.09
This product is designed for the pile-fabric trade and is a mixture of deniers (average about 3.0), 1¼" staple.

Type 39 Semidull $.94
This product is designed for *woolen system spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A Semidull $.99
This product is designed for *woolen system spinning* and is a blend of predominately fine deniers (average 2.5) with a variable cut length.

Type 39B Semidull $.94
This product is designed for *woolen system spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

Type 72 Semidull $1.08
This product is designed as a blending staple with cotton for skin-contact apparel type of fabrics and is a 1.5 denier, 1½" semidull whitened staple.

Type 75 Semidull $1.08
This product is designed for *Cotton/Rayon System* Spinning and is 2.5 denier, 1¼" semidull regular shrinkage staple.

"ORLON SAYELLE"**

Type 21

3.0 denier semidull variable (2½" to 5" average 3¾") staple	$1.45
6.0 denier semidull variable (2½" to 5" average 3¾") staple 4% M	1.40
6.0 denier semidull tow 470M	1.40

F.O.B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.
*"ORLON" is Dupont's Registered Trade-mark for its Acrylic Fiber.
"ORLON SAYELLE"** is Dupont's Registered Trade-mark for its bi-component Acrylic fiber.

MODACRYLIC

Eastman Chemical Products, Inc.
Tennessee Eastman Co.

Current

"Verel"* Staple and Tow

All items available in both bright and dull luster in standard lengths

Denier	Type A	Type B	Type C	Type D	Type III	Type HB
2	$1.02	....	....	....	....	....
2.75*	.75	....	....	....	....	....
3	.75	....	....	....	$0.75	$0.75
5	....	$0.75	....	....	....	.75
8	....	.75	....	....	....	.75
12	....	.70	$0.70	$0.70	....	.70
16	.70	.70	.70	.70	....	.70
24	....	.93	....	....	....	....

* cut 1¼" length only
Type A—High crimp with good crimp retention
Type B—High crimp—less permanent than Type A
Type C—Medium crimp—nonpermanent—crimp easily removed
Type D—Low crimp—completely nonpermanent—fiber must be stabilized in dyeing
Type HB—Very high, very permanent crimp
Type F—Fiber with greater denier and length variation than other types
Type III—Controlled shrinkage fiber
Prices are subject to change without notice.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees

to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

• "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.

Textile Fibers Dept. Effective December 1, 1959

Dynel Staple & Tow

Natural Dynel	
2, 3, 6, 12 Denier, Staple and Tow	1.10 per lb.
Liner blend, Staple only	.92 per lb.
24 Denier, Staple and Tow	1.05 per lb.
12 Denier, Type 80, Staple and Tow	.85 per lb.
3 Denier Type 63, High Shrinkage, Staple and Tow	1.15 per lb.
Dynel Spun with Colors:	
Biond, Pewter, Gray, Brown, Charcoal, Black	
3 and 6 Denier, Staple and Tow	1.20 per lb.
3 Denier Type 63, High Shrinkage, Staple and Tow	1.30 per lb.

Prices are quoted F.O.B. shipping point, freight prepaid our route, within continental limits United States, excluding Alsaka and Hawaii.

NYLON

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1⅛"—4½"	None made	$1.24	$1.10
1.5	201	1⅛"—4½"	None made	1.26	1.12
2.3	420	1½" only	None made	1.24	1.10
3.0	231	1⅛"—4½"	385M	1.26	1.12
3.0	100/200	1⅛"—4½"	430M	1.24	1.10
3.0	101/201	1⅛"—4½"	455M	1.26	1.12
4.6	320	1"—6½"	None made	1.25	1.10
6.0	100	1½"—6½"	330M	1.20	1.06
6.0	101	1½"—6½"	345M	1.22	1.08
15.0	100	1½"—6½"	425M	.95	....
15.0	101	1½"—6½"	None made	.97	....
15.0	600	1½"—6½"	425M	.97	....
15.0	601	1½"—6½"	None made	.99	....

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows: 1⅛, 1⅛, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset
Type 231 Semidull, normal tenacity, high crimp, heatset.
Type 320 Bright, high tenacity, high modulus, no crimp.
Type 420 Semidull, high tenacity, high modulus, no crimp.
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.
These prices are subject to changes without notice.
Terms—Net 30 Days.
Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

NYTRIL

Celanese Fibers Company

DARVAN

Effective Nov. 21, 1958

Type	Price Per Pound Net Crimp Set	Crimp Set
3, 4½ and 6 Denier	$1.45	$1.50
1½, 2 Denier	$1.50	$1.55

Pack in 100 Lb. and 500 Lb. Bales, Net
Staple lengths 1½, 2, 3, 4½
Tow—90,000 Total Denier
Bright, Semi-dull, Dull

(Deniers and lengths of staple not listed above are available upon special request.) Terms: Net 30 Days.

F.O.B. Shipping Point (Avon Lake, Ohio) Minimum freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if overland, or port of exit of purchaser's choice east of the Mississippi River.

OLEFIN

Beaunit Mills Inc.

Fibers Division Effective November 1, 1960

Polypropylene Bright Staple

Denier	Price per lb.
1.5	$.90
3.0	.90
6.0	.90
15.0	.90

Staple cuts are 1½", 2" and 3".
Other lengths are available on request.

Terms: Net 30 days F.O.B. shipping point. Minimum Freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices subject to change without further notice.

POLYESTER

Beaunit Mills Inc.

Current Prices

Vycron Polyester

	Denier	Price Per Lb.
	1.5	$1.00
	3.0	1.00
Staple Cuts are 1⅛" to 6".		
Tow for Converters	1.5	1.00
(Tow Bundle 200,000 Denier)	3.0	1.00

Spun Dyed Black 15¢ per lb. extra.

"Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed within the continental limits of the United States, excluding Alaska. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices are subject to change without notice."

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Dacron"** Staple and Tow

Denier	Luster	Type*	Length	Tow Bundle	1st Gr.
1.5	Semidull	35	1¼"-1½"	None made	1.14
1.5	Semidull	54	1¼"-1½"	None made	1.14
1.5	Semidull	64	1¼"-3"	None made	1.24
2.25	Semidull	64	1¼"-4½"	450M	1.24
3.0	Semidull	54	1¼"-4½"	450M	1.24
3.0	Semidull	61	1¼"-4½"	None made	1.24
3.0	Semidull	64	1¼"-4½"	450M	1.24
4.0	Semidull	64	1¼"-4½"	450M	1.24
4.5	Semidull	54	1½"-4½"	450M	1.24
6.0	Semidull	54	1½"-4½"	450M	1.24
6.0	Semidull	61	1½"-4½"	None made	1.24
6.0	Semidull	64	1½"-4½"	450M	1.24

* Type:
Type 35—More Pill Resistant Staple for Cellulosic Bends.
Type 54—Semidull, Normal Tenacity.
Type 61—Industrial Staple having 45% Shrinkage. Not intended for Dyeable Uses.
Type 64—More Pill Resistant Staple, with Greater Dyeing Versatility.

"Dacron" Polyester Color-Sealed Black Staple and Tow

2.25	Color Sealed Black	64	1½"-4½"	450M	1.44
3.0	Color Sealed Black	64	1¼"-4½"	450M	1.44

F. O. B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

** Dupont's Registered Trade-mark for its Polyester Fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co. Current

"Kodel"*

Denier	Types Semi-Dull HM	I	II	S (Black Only)
1.5 staple only	$1.14	$1.14	$1.14	....
2.25 staple and tow	....	....	1.24	$1.44
3.0 "	....	....	1.24	1.44
4.5 "	....	....	1.24	1.44
6.0 "	....	....	1.24	....
8.0 "	....	....	1.24	....

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

• "Kodel" is a trade-mark of the Eastman Kodak Company.

Celanese Fibers Company

Current Prices Effective April 14, 1961

Fortrel Polyester Staple and Tow

Staple

Denier	Luster	Price
1.5	Semi-dull	1.14
3	Semi-dull	1.24
4.5	Semi-dull	1.24
6	Semi-dull	1.24

Staple lengths 1½", 2" and 3".
All staple packaged in 500 pound bales.

Tow

Denier	Luster	Price
3	Semi-dull	1.24
4.5	Semi-dull	1.24
6	Semi-dull	1.24

Total denier of all tow is 225,000.
All tow packaged in 300 to 400 pound cartons.
TERMS: Net 30 days. F.O.B. destination—Freight prepaid our route within the continental limits of the United States, excluding Alaska. Prices subject to change without notice.

VINYON

American Viscose Corp. Effective October 1, 1956

Avisco Vinyon Staple

1.5 denier 1½" Unopened	$.90 per lb.
3.0 denier 1½" Unopened	.80 per lb.
3.0 denier 1¼" Unopened	.80 per lb.
3.0 denier 1¼" Opened	.90 per lb.
3.0 denier 2" Opened	.90 per lb.
5.5 denier 1" Opened	.90 per lb.
5.5 denier 1½" Unopened	.80 per lb.

Terms: Net 30 days.

SARAN

The National Plastics Products Company—Fibers Division Odenton, Maryland

Current Prices: Saran Staple

Type	Denier	Natural	Colors
2Y—Upholstery	22	$0.70	$0.75
2Y—Upholstery	16	.74	.79
3Q—Industrial Fabrics	22	.68	.72
1C—Carpets	22	.68	.72
1M—Mops	22	.68	.72

In any staple length 1¼ to 6". Also 45 denier, 7" cut.
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Terms: net 30 days.

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DE 150 1/0 1.0 TPI ..... 53¢ per lb.
F.O.B. Freight Allowed.

Personnel Notes

(Continued from page 67)

Charles J. Geyer has been named manufacturing and technical director of the Fibers Division of American Viscose Corp., succeeding **Paul E. Hill** who has retired.

Dr. Robert C. Edward has been elected to the board of directors of Draper Corp.

Theodore A. Jeffords has joined Interchemical Corp.'s Color & Chemicals Division as a technical representative in the Southern Sales district.

W. C. Privette has been appointed dyeing and finishing service manager for Zantrel Polynosic rayon fiber by Hartford Fibres Co.

W. L. Swenson, vice president of Verona Dyestuffs, has retired from active service. He will continue as a consultant and remain on the board of directors.

Dr. Arnold Lada has been appointed New York district manager and **John C. Findlan** has been named sales development director of Onyx Chemical Corp.

Richard F. Siefert has been appointed manager of filament winding marketing for the fiber glass division of Pittsburgh Plate Glass Co. **Carl H. Luther** succeeds Siefert as district sales manager of the Chicago office.

Courtaulds (Alabama) Inc. has named **Thomas G. Ethridge** as Southern region sales manager and **Earl L. Stewart** as Northern region sales manager.

Herbert C. Olsen has been appointed manager of textile service and development for National Starch and Chemical Corp.

W. D. Hightower, of Draper Corp.'s Purchasing Department, has assumed the duties of **Charles O. Hearon, Jr.,** recently promoted to personnel manager at the East Spartanburg Plant. **Ellsworth H. Sears** has been named manager of the plant's industrial engineering department.

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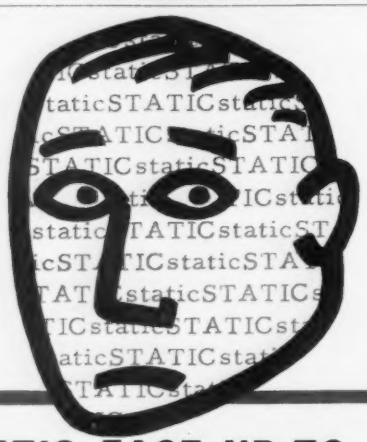

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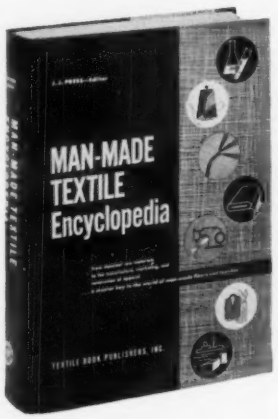

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Calendar of Coming Events

Jun. 5-8—ISA Summer Instrument-Automation conference and exhibit. Toronto, Canada.

Jun. 5-9—Society of the Plastics Industry annual national conference and exposition. Commodore Hotel and Coliseum, New York, N. Y.

Jun. 7—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.

Jun. 14-16—Textile Distributors Institute annual golf tournament. Concord Hotel, Kiamesha Lake, N. Y.

Jun. 17-20—Southern Garment Manufacturers Association annual convention. Roosevelt Hotel, New Orleans, La.

Jun. 19-23 & 26-30—Special Summer Programs relating to Engineering Principles of Textile materials. Massachusetts Institute of Technology, Cambridge, Mass.

Jun. 22-24—Southern Textile Association annual convention. Ocean Forest Hotel, Myrtle Beach, S. C.

Jun. 26-Jul. 1—International Textile Fabrics Fair. Paris, France.

Jul. 10-14—Gordon Research Conferences on Textiles. Colby Junior College, New London, N. H.

Jul. 27-Aug. 1—IUPAC International Symposium on Macromolecular Chemistry. Queen Elizabeth Hotel, Montreal, Canada.

Aug. 29—Textile Salesmen Association fall member-guest golf tournament. Ridgewood Country Club, Ridgewood, N. J.

Sep. 7-8—Combed Yarn Spinners Association annual meeting. The Greenbrier, White Sulphur Springs, W. Va.

Sep. 11-15—Instrument Society of America, Instrument-Automation conference and exhibit. Sports Arena, Los Angeles, Calif.

Sep. 21-22—Carded Yarn Association, annual convention. The Cloister, Sea Island, Ga.

Sep. 21-22—Southern Textile Methods & Standards Association. Clemson House, Clemson, S. C.

Sep. 21-22—Chattanooga Yarn Association outing. Read House, Chattanooga, Tenn.

Sept. 27-29—AATCC National Convention, Hotel Statler, Buffalo, N. Y.

Sep. 27-30—"Index '61" 3rd Virginia biennial state-wide industrial exposition. Roanoke, Va.

Oct. 7—Alabama Textile Operating Executives, fall meeting. Thach Auditorium, Auburn, Ala.

Oct. 11-13—Quartermaster Association national convention. Biltmore Hotel, Atlanta, Ga.

Oct. 11-13—Fiber Society meeting. West Point, N. Y.

Oct. 11-21—International Knitting Machinery Exhibition. Belle Vue Hall, Manchester, England.

Oct. 14—Textile Operating Executives of Georgia. Georgia Tech, Atlanta, Ga.

Oct. 26—Textile Salesmen Association annual fall luncheon. Statler Hilton Hotel, New York, N. Y.

Nov. 8-9—Chemical Finishing Conference. Sheraton Park Hotel, Washington, D. C.

Nov. 13-15—Narrow Fabrics Institute, Inc. meeting. Statler-Hilton, New York, N. Y.

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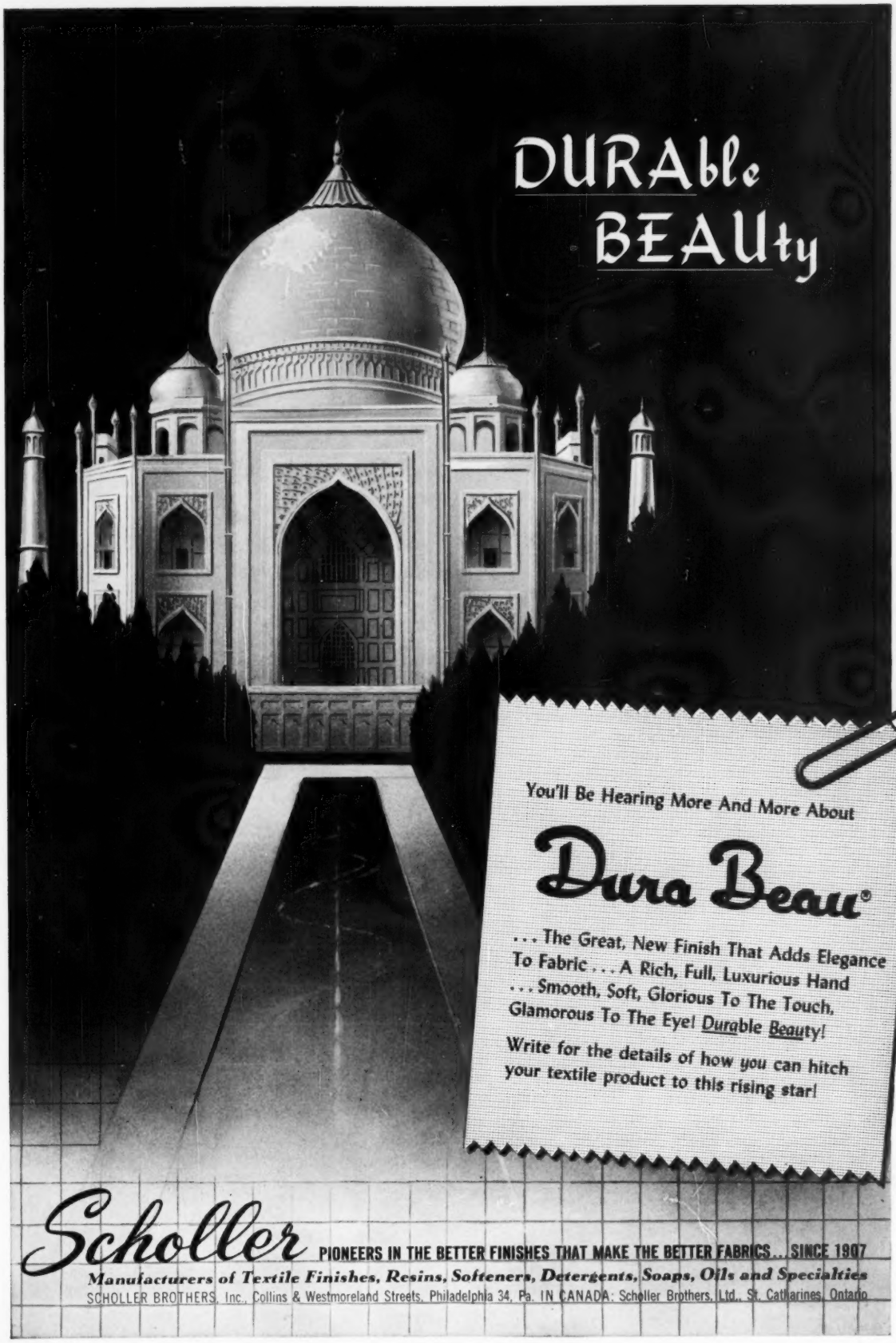

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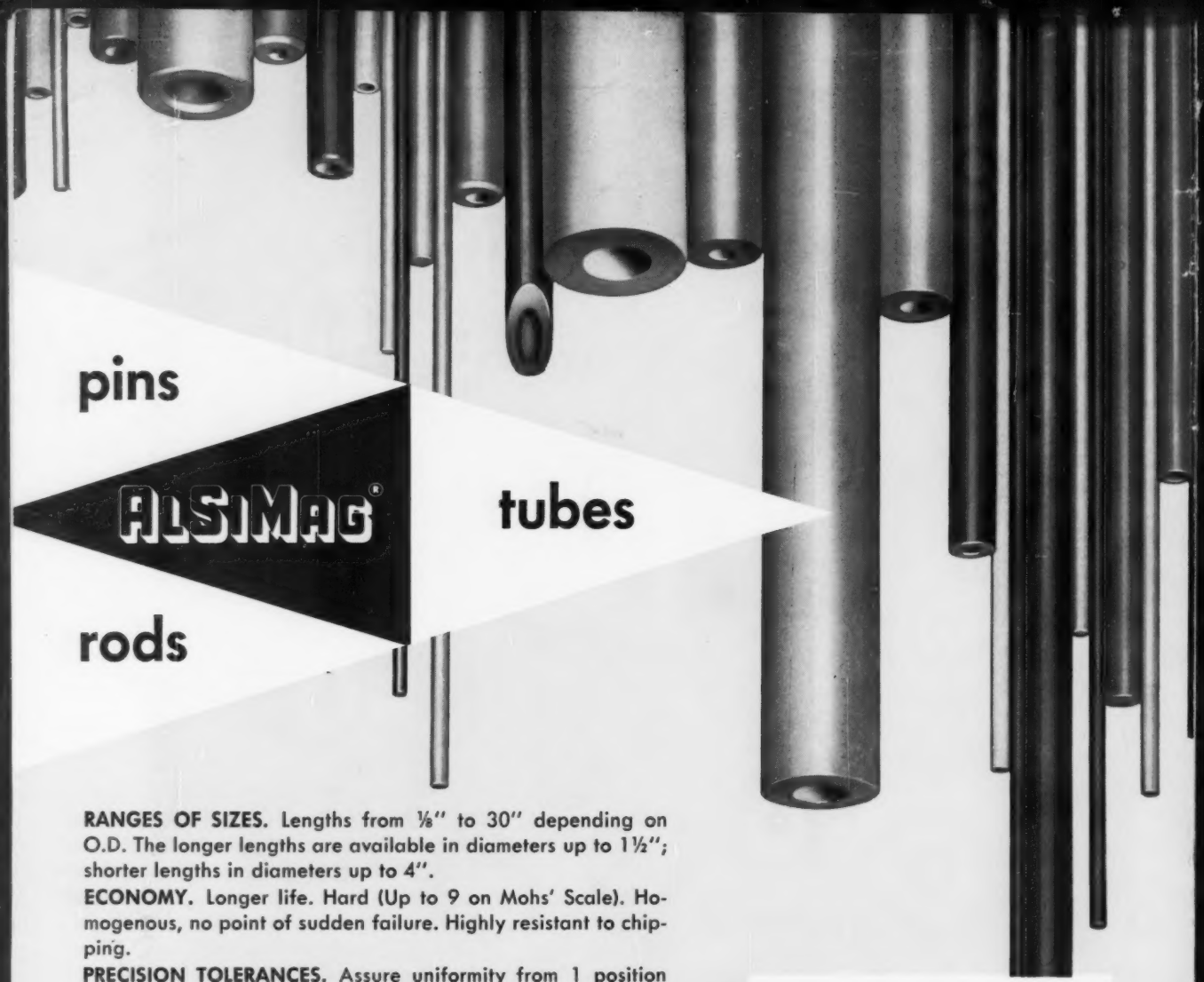

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